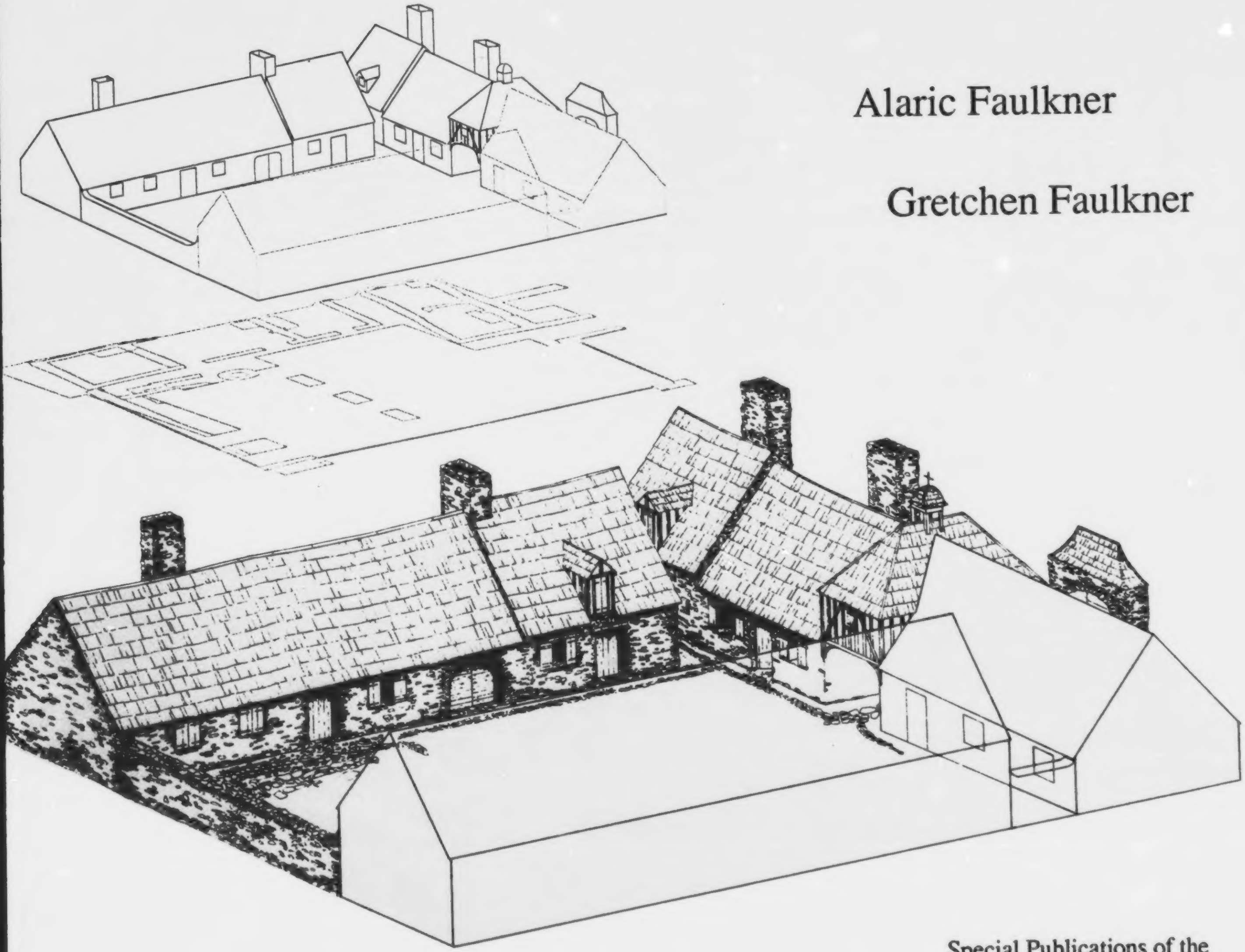
The French at Pentagoet 1635-1674

An Archaeological Portrait of the Acadian Frontier



Alaric Faulkner

Gretchen Faulkner

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and
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The French at Pentagoet

1635–1674

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and

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New Brunswick Museum

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Gretchen Fearon Faulkner

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and
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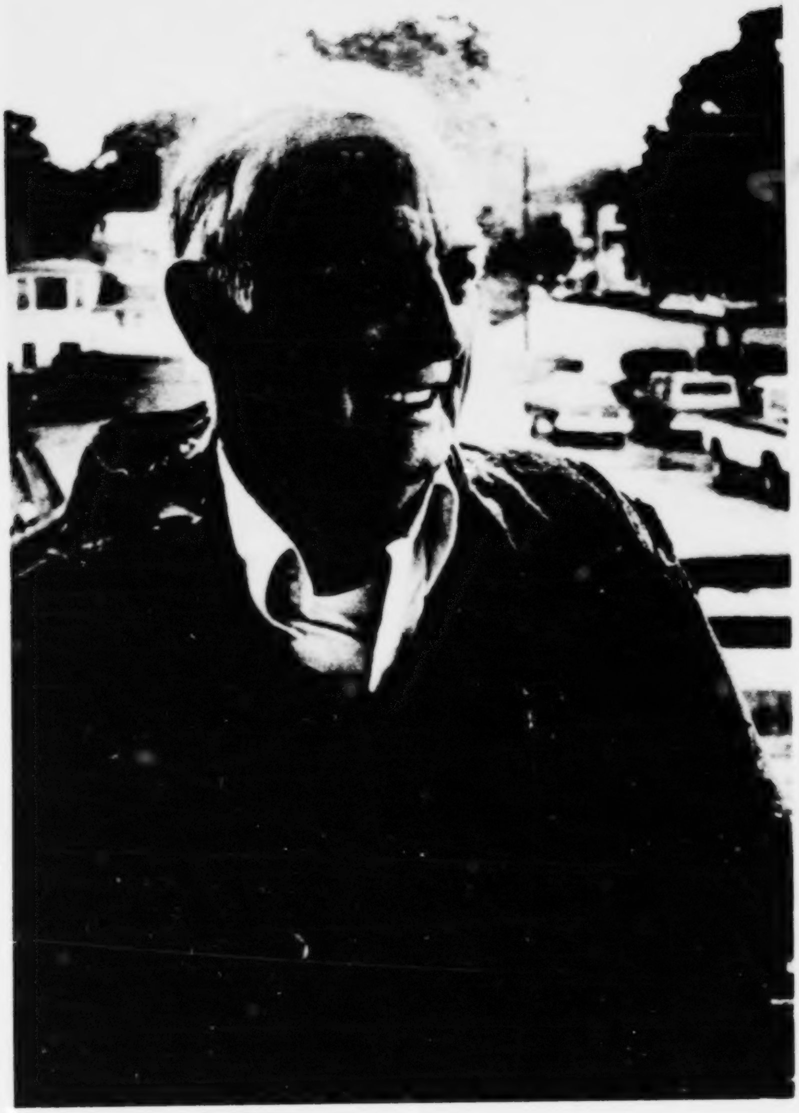

For Philip Perkins
of Castine

The finest kind of benefactor and friend.

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Forward

Residents of Maine and the Maritime Provinces have always known that this area of the world is unique: the people and landscape today have qualities not found elsewhere in our two countries. This uniqueness stretches back into history due to a variety of causes; some go back to one period in particular in which parts of Maine and the Maritimes were essentially one country—then known as Acadia. The Acadian heritage of this region is alive today in so many ways: many family names of Maine are Acadian; French is the first language of much of New Brunswick; and Acadian culture is a vital force in the Maritimes. Another way in which this heritage is alive is through archaeological projects which search for the remains of old Acadia.

The Acadian people of the Maine/Maritimes region are essentially a New World phenomenon rooted in a particular set of historical and ecological circumstances. Acadia was a battleground and borderland between two competing empires being carved out of the indigenous holdings of North America. European (largely French) settlers in Port Royal, Nova Scotia, chanced upon an eco-zone which proved to be very productive with ample room for expansion. The extensive salt marshes, caused by massive tides in the Bay of Fundy, could be exploited with an existing technology—diking. The land did not have to be cleared and its fertility could be renewed simply by re-flooding. As well, there were plenty of opportunities in other parts of the region to make a living from the land and seas, including successful trade with the many Indian peoples.

Our traditional understanding of Acadia is starting to be reviewed. The picture of the "poor Acadian farmer" is being replaced by the comprehension of a tremendously successful ecological adaptation. The recent impact of "social history" and even of "material history" on the traditional practice of history also has implications for our understanding of early Acadia. The tendency of history to view its subject matter through the eyes of the literate classes would suggested that these Acadians were poor, whereas an appreciation of Acadian ecology suggests just the opposite. A growing population, doubling about every 36 years, is not a reflection of impoverished circumstances, but of a very successful and dynamic adaptation. There is a new image of Acadia waiting to be discovered in the archaeological sites of Maine and the Maritimes.

One such site is on Acadia's southern mainland boundary in the State of Maine on Penobscot Bay. The Fort at Pentagoet deals with the nascence of Acadia during the early stages of the European struggle over the new land—a period when Acadian culture was in the process of its formation. This is not the Acadia of the diked lands and dispersed villages of a few decades later. When I had the opportunity to visit the site durings its excavation, I was never so impressed as by the cramped quarters and narrow streets; it was a small enclave where Europeans huddled together behind their stone walls in the vastness of their new territory.

At a workshop in Moncton, New Brunswick, convened to share some of the recent archaeological research on Acadia with the Acadian historical community, Alaric Faulkner was one of the main participants, discussing his work at this Fort. Excitement could be felt throughout the whole workshop; people today were being connected with their heritage through archaeology. This report on the findings is not just a mere academic pursuit: many people are eagerly waiting this report because they still have a share in Acadia. The old land is being reborn through excellent works such as this.

Christopher J. Turnbull

Provincial Archaeologist
Department of Tourism, Recreation, and Heritage
Province of New Brunswick

Preface

> *A good rower sets his course in relation to objects he is leaving behind. Oh sure, there's the occasional glance over the shoulder, but the real work is done backwards, and the only way for the rower to get where he is going is to face squarely where he has been and proceed as best as he can. There's a good deal of loose talk about "facing the future," and it's all very inspirational so long as we realize that anatomically and metaphysically it can't be done. Like the rower, we face the past and back into the future."*—Edward Ives

Our principal objective in writing and illustrating this volume has been to produce at reasonable cost a graphic account of our recent research into the archaeology of a major French colonial outpost in western Acadia. The book is intended to go beyond the scope of the traditional site report, however, and offer some more general insight into strategies of French versus English colonial settlement. It is designed to serve a wide audience interested in historical archaeology in general, and in Acadian history and archaeology in particular—students, professionals researchers, and lay people. While we hope that there is something of value for everyone, it is clear that few would wish to immerse themselves in the entire volume. It is unabashedly a particularistic account intended to lay the groundwork for future Acadian studies. We have tried our best to separate the details from the general themes under discussion, but those who wish to use this book as a reference work should find many useful particulars in the extensive notes and appendices.

It is our sincere hope that this interpretation will spur historians to take a make better use of the increasing body of knowledge offered by their colleagues in historical archaeology. For them and many other readers, the inclusion of archaeological materials in historical analysis is unfamiliar. Material culture—artifacts, structures, features, and the contextual matrix in which they are embedded—present a qualitatively different window opening onto the past. Archaeological data, undergo significant alterations after the formation of a site as artifacts decay differentially and their relationships to each other are disturbed or transformed. Like documents, these data are often incomplete, scrambled, and subject to misinterpretation. Still, they are concrete, often unselfconscious, and in that sense can provide information which lacks many of the biases inherent in written documents. It is doubtful, for example, that any occupant of Pentagoet ever worried about the relative makeup of native foods versus domesticates represented in his garbage or the percentages of French versus English earthenware fragments in the trash accumulating outside his doorway. Yet these data could be far more reliable indicators of subsistence and supply than the individual's own perceptions of his diet recorded in a journal, or the ledgers of his suppliers. Material remains are not merely supplementary or illustrative data; they often convey fundamentally different kinds of information which take us in new research directions not suggested by documents alone. Used critically in combination with conventional primary documents, this tangible evidence can set more realistic bounds within which one can draw inferences about extinct societies.

In the analyses which follows, the reader receives the benefit of our "best guess"—what we believe to be the most plausible interpretation of the data. While we have endeavored to chart the path leading to these findings, we have tried to avoid the labored approach of many New Archaeologists who feel compelled to express and evaluate every working hypothesis. This does not mean that we ascribe to what Leeland Ferguson has jokingly dubbed "Particularistico-Inductive" strategy of reasoning from strictly from repeated observations—the supposed antithesis to the "Hypothetico-Deductive" approach used by the True Believers in Scientific Method in Archaeology. Rather we feel that it is sufficient to *use* the latter method, but to dispense with much of the verbiage and jargon which often comes with it. This is not to suggest that our results are without error, but only that they were arrived at responsibly and are not the products of fantasy or raw speculation. The interpretations, reconstructions, and models presented here are, after all, only on paper; that which is proved wrong can easily be revised.

Finally, the realization of this project has spanned a period of rapidly evolving technology. Three generations of small computers have been used in the preparation of this work, the first for recording and analyzing the data base of more than 12,000 catalogue entries, the second for preparing the typescript and many of the illustrations, and the third for typesetting the final volume. For a fleeting moment, then, the book reflects the use of state-of-the-art technology in archaeology. We hope that this has enriched, rather than cheapened the project, for it has has produced results which would not have been practical or perhaps even possible to attain just a few years ago.

Acknowledgments

A project of this magnitude could not have come to fruition without the assistance of a great many people and many public and private organizations. We would like to thank them all, particularly those individuals who gave so unselfishly of their own time. But because of the scope and duration of the project, there are undoubtedly some omissions from the list which follows; for these we apologize in advance.

In 1981 the Maine Historic Preservation Commission awarded the survey grant which allowed us to identify Fort Pentagoet and assess its archaeological potential. Subsequent funds for three seasons of excavation were provided by the National Endowment for the Humanities, Research Grant RS-20295. We thank both organizations for recognizing the significance of Pentagoet and providing support for the project in a period during which government funds for archaeological research were extremely hard to come by.

No field work could have been conducted without the permission of the landowners, the Catholic Diocese of Portland, and we are very grateful to Chancellor Joseph Ford and Bishop O'Leary for their full cooperation. Locally, Father Eugene Gaffey and the parishioners of Our Lady of Holy Hope Church were most understanding, patient and helpful during the four summers when their back lawn was disrupted. We would also like to apologize profoundly for the Saturday service when our cat climbed through the window, marched down the aisle, and curled up on the bible.

We also made many good friend in Castine, many of whom contributed to the excavation. We thank Roy Bowden and the late Alice Bowden for providing hospitality and hand tools. Commander Leonard Tyler arranged living quarters for the crew at Curtis Hall in the Maine Maritime Academy. Most valuable was our friendship with Philip Perkins, who turned his house over to us for laboratory and kitchen facilities for three summers in a row.

Senators William Cohen and George Mitchell were instrumental in supporting measures to stabilize the site, protecting it from further erosion. In 1984 the U. S. Army Corps of Engineers built a sea wall about the site which should protect it for future generations. To them were are particularly grateful.

The labor of excavation was provided by a number of volunteers, mostly students, who are too numerous to list, but whose names are preserved in the thousands of catalog entries for Pentagoet, and we think of them often. Special recognition is deserved by the field foremen, Emerson Baker, Martha Hill, and Joern Steinort. Other students deserve credit for laboratory analysis, iron conservation, and data crunching. These include Cathy Brann, Anne Hilton, Peter Morrison, Steven Nawrocki, Linda Novak, and Amy Sommers.

A number of professional consultants have assisted in the excavation and interpretation of Pentagoet, and so have made essential contributions to this work. Daniel Stanfill of Detection Sciences Group, with the assistance of Michael Roberts, provided the Ground Penetrating Radar analysis of the site. David Sanger and James Petersen analyzed the prehistoric assemblage from the site. Catherine Carlson identified the fish remains, while Arthur Spiess studied the mammal and bird bones.

Many scholars have shared with us their research, published and unpublished, allowing us to place Pentagoet in a broader context than otherwise would have been possible. Jean Chapelot, John Allen, Cynthia Gaskell-Brown and Steven Pendery have shared their knowledge of French and English ceramics. Norman Barka has allowed us to photograph key specimens from Fort La Tour, and has shared with us his pioneering work on that site. We are also grateful to numerous other researchers currently studying related English and French Colonial sites: Birgitta Wallace and Denise Hanson for the Nicolas Denys Trading Post at St. Peter's; Françoise Niellon and Marcel Moussette for Champlain's Habitation in Québec; Mark Lavoie and David Christianson for Belle-Isle and Fort Sainte-Marie-de-Grâce; Robert Bradley for Pemaquid; and Emerson Baker for the Clarke and Lake Company site. Ellenore Doudiet has provided important background material on Pentagoet's 18th and 19th century history.

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Elliot of the The New Brunswick Museum; George MacBeath, former deputy minister of Heritage, Province of New Brunswick; Earle G. Shettleworth, Jr., Director of the Maine Historic Preservation Commission; Arthur Spiess of the Maine Historic Preservation Commission and the Maine Archaeological Society. In addition the Department of Tourism, Recreation, and Heritage, Province of New Brunswick, is providing translation services for the French edition of this work under the guidance of Fidèle Theriault, with the support of Christopher Turnbull.

Cathy Brann has produced many of the numerous line drawings which illustrate this report, and her talent is clearly evident. We are also thankful to the Archives Nationales and Bibliothèque Nationale in Paris for photographs of some important early maps and plans in their possession.

Many readers and reviewers have generously given their time, encouragement, and criticism to various sections of the typescript—criticism which has been very helpful in its revision: Emerson Baker, James W. Bradley, Paul Castle, Robert Elliot, Father Clarence J. d'Entremont, Gerard Gusset, Paul Huey, Richard Judd, Marc Lavoie, John Light, M. A. MacDonald, Françoise Niellon, Steven Pendery, Jan Piet Puype, and John Reid. Finally, special thanks are due to Robert Bradley and series editor Arthur Spiess who have gone over the typescript repeatedly, and have always provided a prompt turn-around of the edited materials.

Chapter 1

Introduction

Maine and the Maritimes saw many European attempts at colonization during the 17th century—French, English, Scottish and Dutch—and nowhere is the evidence of the struggle to control and exploit the resources of the northeast better preserved than at Fort Pentagoet in the coastal village of Castine, Maine. Until recent archaeological excavations, this 17th-century Acadian outpost lay largely forgotten, buried at the water's edge, beneath the back lawn of the small Catholic church, Our Lady of Holy Hope. Small, but well-designed according to the standards of its day, Pentagoet was "a very strong fort,"[1] of a sort commonly used in the French colonies as a nucleus for settlement and as headquarters for extractive industries—cod fishing, lumbering, and fur trade. The ruins testify to an era when half the coast of Maine, now popularly regarded as some sort of downeast Yankee homeland, was a cornerstone in the early French struggle to maintain their northeastern establishments against the enchroachments of New England. Although the fort has been all but ignored in a region which celebrates its Yankee heritage, its archaeological record shows that not all the spoils belong to the victors. Viewed here from an archaeological perspective, the site provides an opportunity to study the several strategies attempted in exploiting the region, and to reconstruct French lifeways on the Anglo-Acadian frontier.

Fort Pentagoet takes its name from the area it was designed to control. Situated at the confluence of the Bagaduce River and Penobscot Bay, the site marked the last major Acadian holding before the frontier with New England (Figure 1.1). "Pentagoet" (pronounced locally Pen-ta-*go*-ette) is probably a French corruption of an Indian place name, and had been used by the French since the first decade of the 17th century to refer to the Penobscot River drainage in general, and specifically to the Penobscot Bay region.[2] The derivation of the name, if indeed there is a single derivation, is ambiguous. Although it was used as a synonym for "Penobscot," the term preferred by the English, the two names appear to have had separate origins. "Penobscot," according to the leading authority, Fannie Hardy Eckstorm, derives from "pen [descending]-absk [ledge]-t [locative]," and signifies a place where the rocky hillside descends to the river—the region between Old Town and Bangor. She gives two separate origins for variants of "Pentagoet": "Peimptegouet" (Champlain, 1604), and "Pemetegoet" (Lescarbot, 1609) she interprets as "Pem [extended]-tegwa [river]-took [locative]," meaning the main course of the river below Bangor, while "Pentagoet" (Champlain, 1607) is translated as "Pen [descending]-tegwe [river]-t [locative]," signifying a falls. Good arguments can be made for both of these etymologies.[3]

The location of the fort itself was originally an Indian campsite. While French traders had established claims to the area of Penobscot Bay in the first decade of the 17th century, the first Europeans at this location were apparently English traders who worked for the Plymouth Colony and operated the post "Penobscot" from 1629 to 1635. The Penobscot site, like that of their other posts, was chosen as the most reasonable accommodation of 17th-century European and aboriginal modes of transportation. Although both peoples travelled almost exclusively by water, Europeans required protected anchorages, accessible by waterways a fathom or two deep which would permit the safe passage of 200 to 300 ton vessels. True, the Indians also navigated about the offshore islands and were quick to adopt the European shallops to venture into deep water.[4] Yet in following their annual schedule, which might require them to go deep into the interior in the winter months and come back to the coast in the summer, they traveled by canoe. Thus they avoided rough or open water, keeping close to interior waterways and protected stretches of coastline and portaging over land to avoid unnavigable stretches and to shorten their journey.

The intricate, submerged littoral of Penobscot Bay offered many potential trading sites combining these features, but Pentagoet was one of the most obvious and fit the Plymouth colony concept of "the most convenientest place for trade."[5] Controlling the mouth of the Bagaduce River and facing the portage across Cape Rosier, it intercepted virtually all Indian traffic between the Penobscot River and the aboriginal fisheries lying to the east in the vicinity of Blue Hill Bay and Mount Desert Island. Like many first genera-

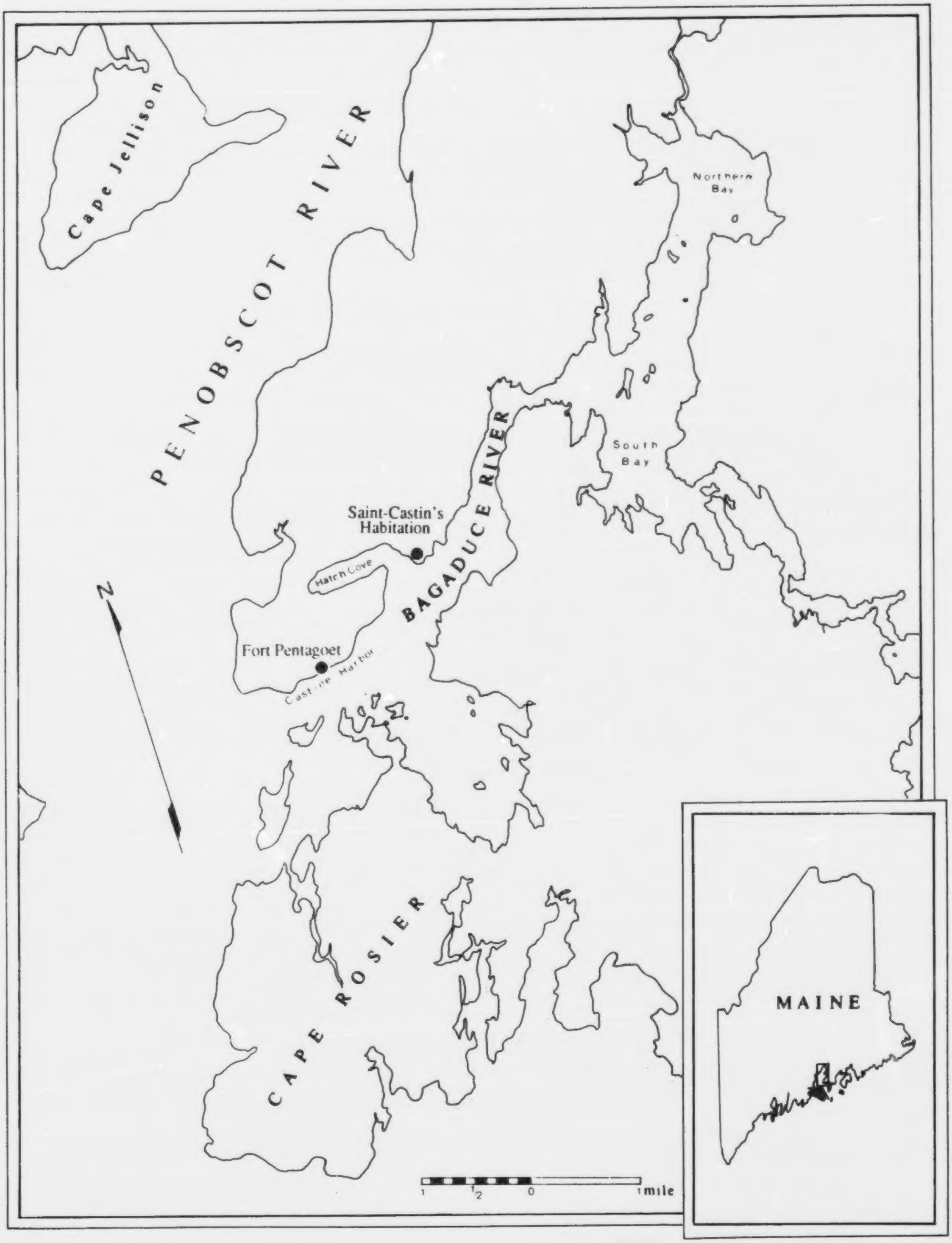

Cape Jellison
PENOBSCOT RIVER
Northern Bay
South Bay
BAGADUCE RIVER
Saint-Castin's Habitation
Hatch Cove
Fort Pentagoet
Castine Harbor
N
CAPE ROSIER
MAINE
1 ½ 0 1 mile

Figure 1.1 The mouth of the Bagaduce River in mid coastal Maine, site of Fort Pentagoet (1635–1674), a major 17th-century French fortification. Also shown further upstream is the location of Pentagoet's successor, Saint-Castin's Habitation (c. 1677–c. 1690).

tion European settlements, the site sacrificed defensibility for ready access to shipping. While it was commanded by higher ground, its waterfront location provided good visibility of the surrounding area, facilitating commerce and reducing slightly the chance of surprise attack. Another vital asset was a stream which ran adjacent to the fort. This, together with a spring located about 60 meters away, provided the only reliable source of fresh water on the peninsula.

The principal archaeological remains which survive at Pentagoet were erected by the French in the late 1630s. France gained control of Acadia, including the Penobscot drainage, in 1632 by the treaty of Staint-Germain-en-Laye. In 1635, French entrepreneurs took possession of the Penobscot post and began building Pentagoet. An impressive stone building complex soon replaced the small English outpost. The new establishment was military in design, and was devoted primarily to the control of the Penobscot fur trade and secondarily to the protection of Acadian settlements.

Throughout its subsequent thirty-nine year history, whether under English or French control, the fort defended a "cosmopolitan," frontier. Unlike the English settlement of Massachusetts Bay, there was no attempt at wholesale transplantation of European life to form independent, self-sufficient communities.[6] Instead, the region served as an extension of European enterprise, harboring extractive industries which did not compete with industry overseas, but which contributed raw materials and commodities vital to sustain the parent economy. Yet the approaches taken to develop this kind of frontier varied considerably.

During Pentagoet I (1635–1654), the fort was operated by French nobleman and entrepreneur Charles d'Aulnay and his subsequent creditors. As Lieutenant General, d'Aulnay gradually gained control of most of Acadia. While his headquarters were located across the Bay of Fundy at Port Royal, he maintained a major garrison of employees and servants at Pentagoet to operate and defend a variety of local enterprises—the fur trade, shipbuilding, a mill and a farmstead. In effect, the fort protected these interests as much from the depredations of his arch rival Charles de la Tour as from English and Indian enemies.

In 1654, the fort, along with the rest of Acadia, was taken under orders from Cromwell, and for a sixteen year interim, Pentagoet II (1654–1670), the English governed the region. Pentagoet was operated as a fur trading post, at first by a French truck master, and later by a few employees of Sir Thomas Temple and William Crowne. The English were not interested in settling Acadia, however, and the surviving physical evidence does not indicate a large or sustained English garrison at the site.

Acadia was given back to the French in 1667 as a condition of the Treaty of Breda, and in 1670 the fort was formally turned over, beginning Pentagoet III (1670–1674). Preliminary plans were drawn for development of the region at the behest of Louis XIV, and because of its strategic location, Pentagoet was selected as Acadia's capital. So it remained for a scant four years, under the military governorships first of the Chevalier de Grandfontaine and later of Jacques de Chambly, both former officers in the famous Carignan-Salières regiment. But the plans for settlement languished for want of royal support, and Pentagoet remained primarily a fur trading center.

In 1674 a Dutch raiding party, intent on driving the French from their maritime colonies, attacked and destroyed the fort. Its buildings were burned and its chimneys and foundations were "leveled to the ground," apparently with the fort's own guns. The razing of the fort by the Dutch privateers covered the lower courses of masonry and the occupation surfaces of 1674 beneath nearly a meter of stone rubble, preserving a remarkable archaeological record.

Jean Vincent de Saint-Castin, a former ensign at Pentagoet, reestablished French authority in the area c. 1677, and attempted an new settlement strategy. He left the old European fort in ruins and built a new habitation further up the Bagaduce River, a habitation which became the focus of an Etchemin village.[7] The integration of trade and settlement among the Indians proved quite successful, and Saint-Castin's sons carried on as "captains des sauvages" for a second generation. Acadia remained in French control until it was ceded to England by the treaty of Utrecht in 1713.

Acadian Maine was not actually settled by the English, however, until 1759. During the 1760s, an outbuilding from an English homestead stood upon a portion of the rubble of Fort Pentagoet, but fortunately this occupation was brief and did not obliterate the French components which lay beneath it. Ever since the English resettlement, the site has been the subject of local curiosity and speculation.

General awareness of Pentagoet, however, has not been widespread.[8] Its role in early Acadian history has only been considered in detail in a few local antiquarian works of the late 19th and early 20th centuries.[9] Dr. George A. Wheeler, historian of the town of Castine, assembled and published a remarkable collection of French and English primary documents relating to Pentagoet, and his interest even prompted some rudimentary excavations at the site. In 1892, the aged Dr. Wheeler oversaw the exposure of a section of the magazine or storehouse on the north side of the fort, but his understanding of the site as a whole was limited to what he could divine from the overgrown rubble, and amounted to little more than phrenology of the landscape.[10]

With a few notable exceptions, early historians of Maine and of the Maritimes have emphasized the dominant English culture, and many of those who have considered French colonization have ignored Acadian Maine.[11] Recently, however, a flurry of publications has shown new interest in the development of Acadia in the 17th century and its interactions with New England.[12] Yet many of these new scholarly works continue to treat Pentagoet as just another

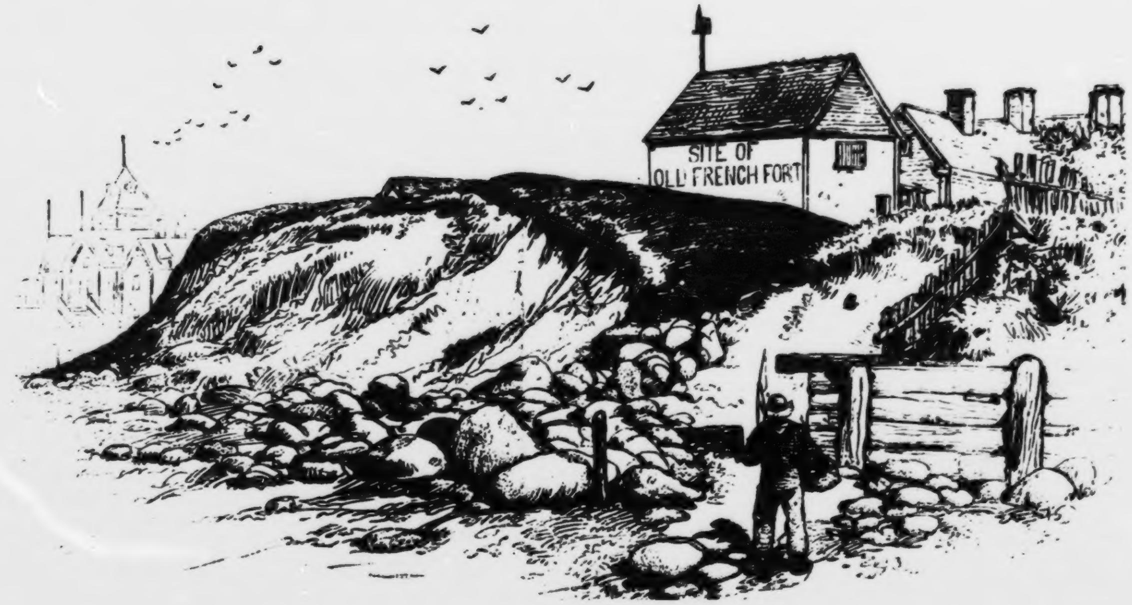


Figure 1.2 Drawing clipped from an unidentified Portland newspaper showing the eroding bank at Pentagoet, c. 1880. The barn stood over the cellar of Pentagoet's magazine. The farmhouse shown was remodelled in 1922, becoming the Church of Our Lady of Holy Hope, which still occupies the site.

place name, and show no understanding of the physical nature of the site or appreciation for its importance to the rest of Acadia. Its significance as a strategic fortification, as a major commercial venture, as a center of French influence on the Etchemins, and, in its final years, as the seat of regional government, has been overlooked by all but a handful of scholars.

The archaeology of Acadia has suffered similar neglect.[13] Although work is in progress on a number of sites other than Pentagoet, just two major 17th-century Acadian sites have been extensively excavated: Ste. Croix (1604–1605, Dochet's Island, Maine), and Fort La Tour (1631–1645, Saint John, New Brunswick). The resulting unpublished reports, produced about twenty years ago, are not generally available.[14] In Maine, before the present excavations, the 17th-century Anglo-Acadian frontier had been examined only from the English side with the excavations of the village and forts at Pemaquid and the Clarke and Lake Company outpost on the Kennebec River (Arrowsic, Maine).[15] Now, however, Pentagoet provides a comparative model for French settlement.[16]

The small seaside lot in Castine, now the church lawn, had long been reputed to be the site of the "Old French Fort" (Figure 1.2). But what actually remained of Pentagoet was not apparent until recently. Although coastal erosion has taken its toll on the ancient establishment, it was this exposure which ultimately prompted its excavation and the subsequent stabilization of the waterfront. While examining storm damage along this shoreline in the spring of 1980 as part of a research project, an historical archaeology student at the University of Maine discovered an impressive section of slate masonry protruding from the 4 m high coastal bluff.[17] In the following year, a team of trained volunteers began the first systematic excavations at the site, under a seed grant from the Maine Historic Preservation Commission. The immensely successful first season of testing demonstrated that virtually all of the inner compound, the principal living area of the fort, had escaped erosion. Dry stone masonry walls as high as 2.1 m survived intact. The final occupants had left behind an impressive artifact assemblage on the former floors, sealed beneath tons of rubble from the superstructure of the building complex. Thus the many archaeological features and structures offered an excellent record of the fort's organization and of the activities associated with its operation.

Equally obvious, however, was the vulnerability of the site. Storm damage had nearly eliminated the southern stone curtain, leaving the interior of the compound exposed to the full force of the sea (Figure 1.3). Work, therefore, proceeded with two objectives: systematic excavation and erosion control. Public awareness of the significance of the site prompted the U.S. Army Corps of Engineers to build a sea wall

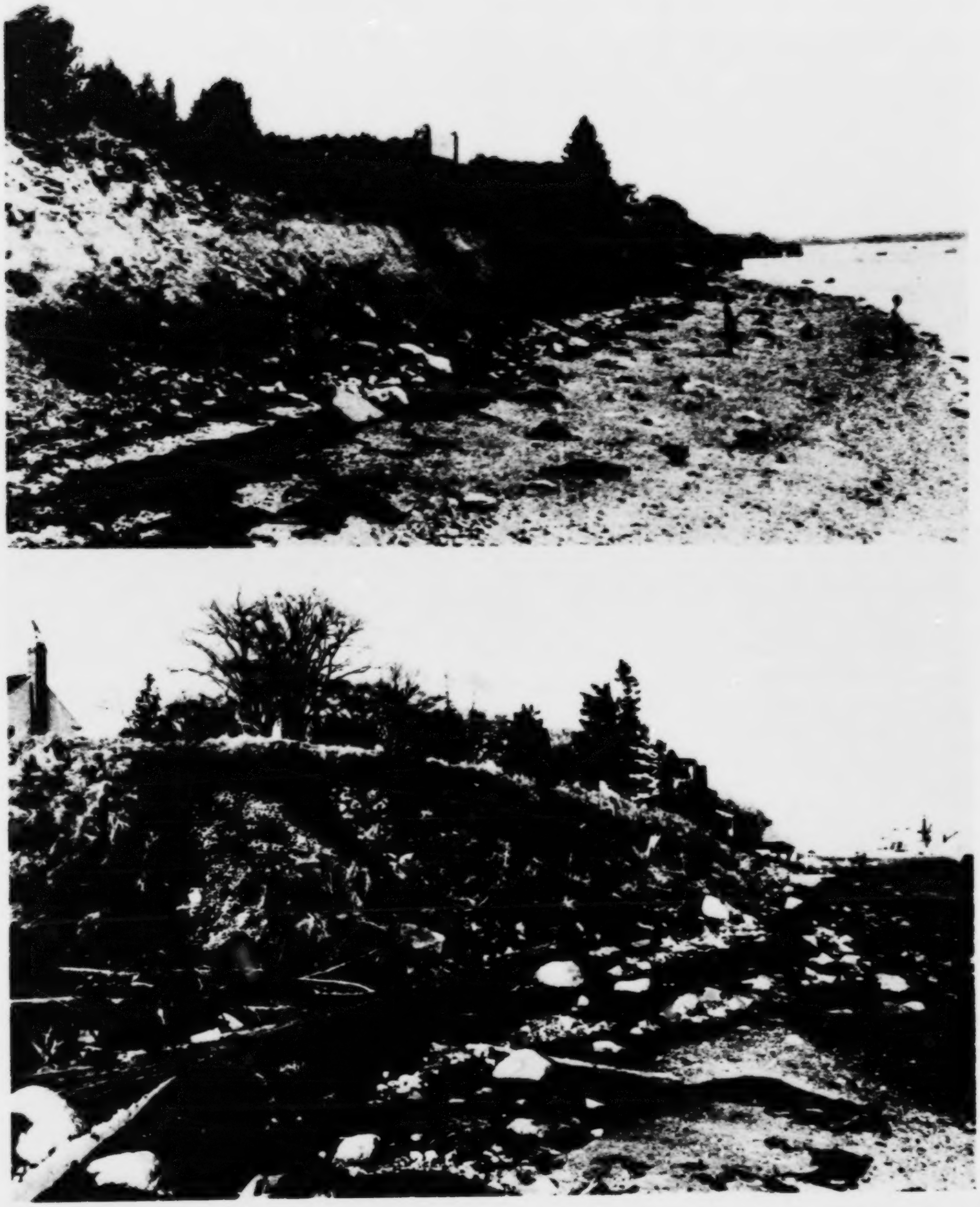


Figure 1.3 Exposure of Pentagoet's slate rubble by coastal erosion c. 1880 (*top*) and April, 1981 (*bottom*). Careful comparison of the two views indicates a loss of approximately 4 m of shoreline in the intervening century. Note the exposed west curtain, which intrudes into an aboriginal shell midden (*bottom, left center*).

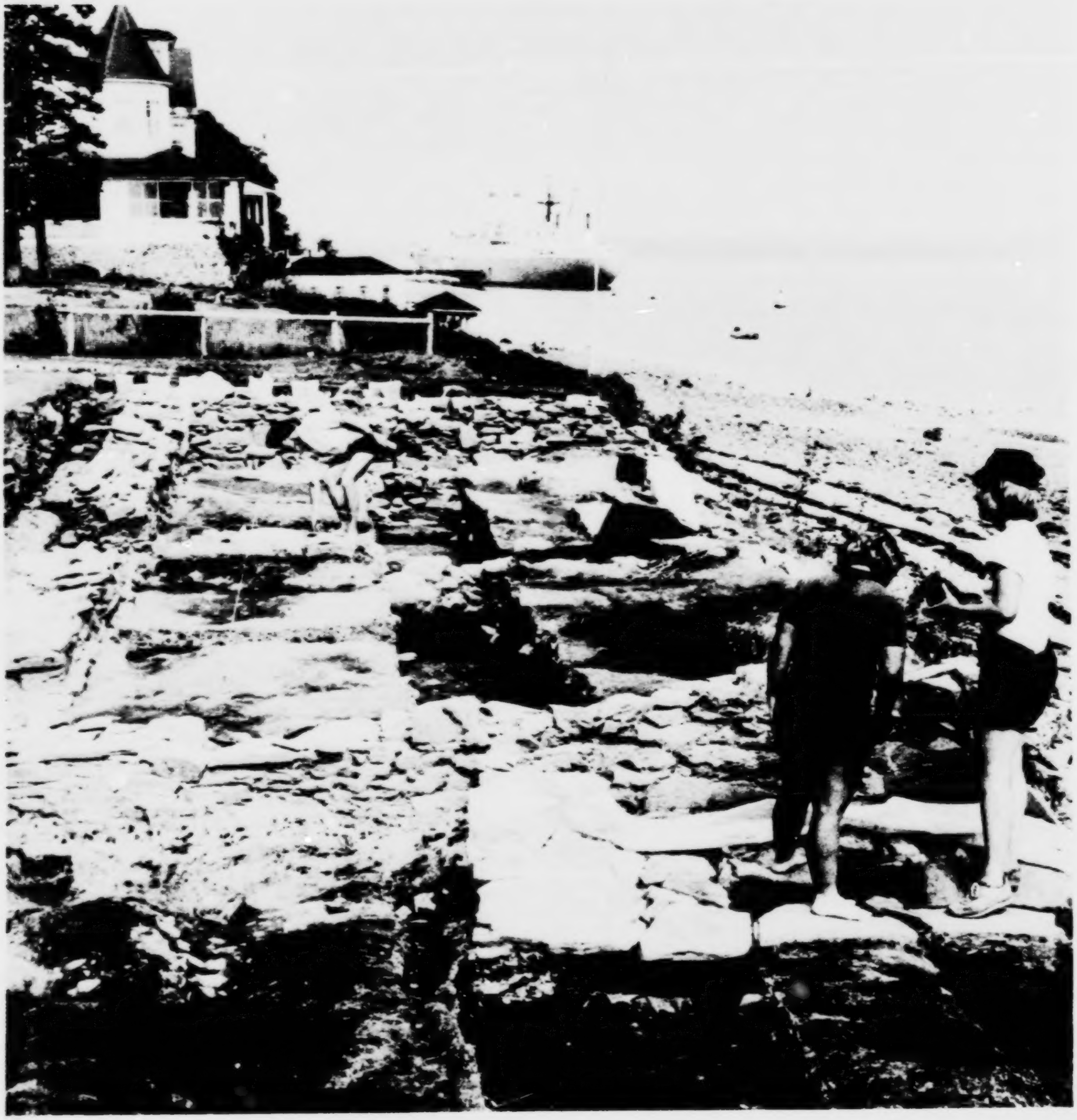


Figure 1.4 The 1983 excavation of Structure 2, the Barracks/Workshop, looking east.

along the eroding scarp. This construction project, completed in the spring of 1984, replaced the eroded southern curtain with a thick revetment of granite blocks which should protect the shoreline well into the next century.

After the preliminary archaeological work of 1981, the National Endowment for the Humanities sponsored three years of major excavation.[18] From 1981 through 1984, crews from the University of Maine exposed nearly 50% of Pentagoet's inner compound, concentrating their efforts on the seaward side of the fort (Figure 1.4). Section by section, the site was trenched, exposed laterally, and then backfilled with sand and gravel to protect the dry stone masonry walls and wooden floors. Leapfrogging in this way, the team was able to record and preserve the archaeological footprint for future study and possible reconstruction.

The settlement plan revealed was essentially that designed and modified by the French, between 1635 and 1674. In the process of earthworks construction, the site underwent extensive landscape modification, which nearly obliterated the earlier remains of Penobscot, the Plymouth colony post. Footings of the more substantial French structures, set well below the frost line, intruded into the remnants of the previous English component and the several aboriginal clam shell middens lying beneath. The architecture which survives is typical of the French colonies in North America—masonry of tabular rock, principally slate, laid up in random courses—a building technique still visible today in the old city of Québec.

The large artifact collection, represented by 12,221 catalogue entries, is also overwhelmingly representative of French, rather than English habitation. Ceramics made in southwestern France are especially common, as are various products of the Low Countries, especially tobacco pipes, stoneware, tin glazed ware, and firearms. Most manufactured products are presumed to have passed through the port of La Rochelle, Pentagoet's principal source of supply abroad, while a few apparently derive from New England. These provide a fingerprint of early Acadian supply which can be compared to the records of the few other Acadian sites which have been excavated or are currently being studied.[19] Now that the current phase of archaeological work has been completed, it is important to examine the site from an interdisciplinary perspective, using images reconstructed both from contemporary writings and from the tangible remains of occupation. This is a composite portrait of Pentagoet—a sense of the several dimensions of the place—based on a widely varied set of primary documents as well as on the patterns of structures, features and artifacts now reburied. We look beyond the sequence of political events traditionally construed as the site's significance, and into the mechanics of everyday life on the Acadian frontier. This is a study not just of frontier conquests, but of the maintenance and adaptation of European lifestyles in a frontier settlement as yet too sparsely populated to sustain and defend itself.

◆

Notes to Chapter 1: Introduction

1 "Thomas Gorges to Sir Ferdinando Gorges, July 7, 1643," Robert E. Moody ed., *The Letters of Thomas Gorges*, Maine Historical Society, (Portland, 1978).

2 Like many place names in Maine, "Pentagoet" could derive from any of a number closely related Algonkian languages, particularly Maliseet (Etchemin) or Abnaki (Penobscot). See Fannie Hardy Eckstorm, *Indian Place Names of the Penobscot Valley and the Maine Coast*, University of Maine at Orono Press, (Orono, Maine, 1978), pp. xxvi–xvii. Eckstorm evaluates all of the Indian translations given by previous scholars, including Wm. F. Ganong and John Clarence Webster. Since the publication of Eckstorm's work, false etymologies of place names have become the bugbears of northeast history, thanks to *America B.C.* by Barry Fell and similar works of popular fiction. Repeatedly visitors to Pentagoet have insisted that the name "Pentagoet" was European in origin—usually Breton or Welsh—and have claimed that the name persists abroad. Yet none of the proponents of the European derivation theory have been able to come up with the necessary supportive evidence. The authors, intrigued by this possibility, have tried as best they could to follow up these leads in England and France, but with no definitive results. It is true that a few Breton place names end with "oet," but this only indicates a reasonable choice on the part of the French in transcribing the Indian locative, "ot," (a variant of the more frequent "ek," "ook," or "eag").

3 Eckstorm, *Indian Place Names of the Penobscot Valley*, (1978), pp. 1–3,191–193. Eckstorm identifies the falls as the several tidal rapids of the Bagaduce river near the site of the fort, about which the Indians had to portage, but there is good reason to question this identification. Goose Falls, a reversing falls directly opposite the site on Cape Rosier is another candidate for the reference. It seems more probable, however, that the falls were those huge rapids used for fishing just above the limits of Bangor, where the first European explorers searched for "Norumbega," the mythical city of gold. Thus "Penobscot" and "Pentagoet" would have referred to approximately the same location originally, and would have become acceptable synonyms.

4 Henry Hudson, for example, noted "two French shallops full of the country people" who came to trade with him in Penobscot Bay in 1609. George Parker Winship, *Sailors Narratives of Voyages Along the New England Coast 1524–1624*, Houghton, Mifflin & Co., (Boston, 1905), p. 182.

5 William Bradford, *Of Plymouth Plantation 1620–1647*, Alfred A. Knopf, (New York, 1952), p. 202.

6 This, in the jargon of frontier studies, contrasts with an autonomous or "insular" frontier, destined to bud off from and compete with the parent state. See Kenneth E. Lewis, *The American Frontier: An Archaeological Study of Settlement Pattern and Process*, Academic Press, (Orlando, 1984), pp. 16–18.

7 One myth perpetuated by various authors is that the famous Jean Vincent de Saint-Castin rebuilt Pentagoet: Samuel Drake, *Nooks and Corners of the New England Coast*, Harper and Brothers Publishers, (New York, 1875), p. 78. George A. Wheeler, "Fort Pentagoet and the French Occupation of Castine," *MeHS*, Series 2, (1983), vol. 4, p. 120. Allan Forbes and Paul F. Cadman, *France and New England*, vol. 1, State Street Trust Co., (Boston, 1925), pp. 70–81. Nevertheless, all primary evidence, cartographic, narrative, and archaeological, indicate that the original fort was left in ruins, and that Saint-Castin established his habitation further up the Bagaduce River.

8 Most early histories give only passing reference to Pentagoet, including William D. Williamson, *History of the State of Maine*, Glazier & Masters, (Hallowell, Maine, 1839). Francis Parkman, *The Old Regime in Canada*, Little Brown & Co., (Boston, 1895). Herbert Milton Spenser, *Land of St. Castin*, W.B. Clarke Co., (Boston, 1909).

9 Charles W. Noyes, "Fort Pentagoet and the Early Beginnings of Castine," ms. on file, Historical Archaeology Laboratory, University of Maine at Orono, (n.d.). George A. Wheeler, *Castine Past and Present*, Rockwell and Churchill Press, (Boston, 1896). George A. Wheeler, *History of Castine, Penobscot and Brooksville*, Burr and Robinson, (Bangor, Maine, 1875).

10 George A. Wheeler, "Fort Pentagoet and the French Occupations of Castine", *MeHS*, vol. 4, 2nd series, Brown Thurston Company, (Portland, Maine, 1893). Naturally Wheeler's account became a secondary source for later authors who perpetuated considerable misinformation about the site.

11 Among the exceptions must be included the works of Wm. F. Ganong, and John Clarence Webster. See especially Wm. F. Ganong, editor and translator, *The Description and Natural History of the Coasts of North America by Nicolas Denys* [1672], The Champlain Society, (Toronto, 1908) and John Clarence Webster, *Acadia at the End of the 17th Century*, The New Brunswick Museum, (Saint John, N. B., 1934).

12 Andrew Hill Clark, *Acadia*, University of Wisconsin Press, (Madison, 1968). George A. Rawlyk, *Nova Scotia's Massachusetts 1630–1784*, McGill-Queens University Press, (Montreal, 1973). John G. Reid, *Acadia, Maine and New Scotland: Marginal Colonies in the Seventeenth Century*, University of Toronto Press, (Toronto, 1981). M. A. MacDonald, *Fortune and La Tour: The Civil War in Acadia*, Methuen, (Toronto, 1983).

13 Several projects have been initiated recently. Fort Sainte-Marie-de-Grâce (1632–1652) at La Hève, Nova Scotia, was partially excavated by David Christianson of McMaster University in 1979, but the results are as yet unpublished. Christianson also dug a similar Acadian settlement at Belleisle, Nova Scotia in 1983. See David J. Christianson, "Belleisle 1983: Excavations at a Pre-Expulsion Acadian Site," *Nova Scotia Museum Curatorial Report Number 48*, Nova Scotia Department of Education, (Halifax, 1984) and "Acadian Archaeological Research at Belleisle, Nova Scotia," *The Occasional, an Occasional Journal for Nova Scotia*, vol. 8, no. 3, (1984), pp. 17–21. Andrée Crepeau, of Parks Canada, Louisbourg has excavated at the Melanson site in 1984 and 1985, an early 18th-century Acadian settlement near Port Royal, Nova Scotia. Particularly interesting for comparison to Fort Pentagoet is the 1985 test conducted by Birgitta Wallace of Parks Canada, Halifax at St. Peter's (c. 1650–1669), a portage leading to the Bras d'Or Lakes on Cape Breton, Nova Scotia, the site of Nicolas Denys' trading post. Finally, work continues by the authors at Saint-Castin's Habitation (c. 1677–c. 1690).

14 Jacob W. Gruber, "The French Settlements on St. Croix

Island, Maine: Excavations for the National Park Service 1968–1969," (ms. on file Historic Archaeology Lab, University of Maine at Orono, 1972). Barka, Norman F., "Historic Sites Archaeology at Portland Point, New Brunswick, Canada, 1631–c. 1850 AD," (Ph.D. dissertation, Harvard University, 1965).

15 See Emerson W. Baker *The Clarke & Lake Company: The Historical Archaeology of a Seventeenth-Century Maine Settlement*, Occasional Publications in Maine Archaeology , no. 4, Maine Historic Preservation Commission, (Augusta, 1985) and Helen B. Camp, *Archaeological Excavations at Pemaquid, Maine 1965–1974*, Maine State Museum, (Augusta, 1975). A more complete work on the archaeology of Colonial Pemaquid by Robert L. Bradley and others is forthcoming in this series.

16 Various models of early Acadian settlement, including that employed by Saint-Castin after the destruction of Pentagoet are taken up in detail in Alaric Faulkner and Gretchen F. Faulkner, "The Settlement of Acadian Maine in Archaeological Perspective," *Northeast Historical Archaeology*, 1987, vol. 14, pp. 1–20.

17 The wall was first noted by University of Maine student Mary Hooper in the spring of 1980.

18 Funding was provided under NEH research grant RS 20295-82.

19 The artifacts remain together as a study collection in the Historical Archaeology Laboratory at the University of Maine. Selected items have been put on display in numerous temporary exhibits, and plans for an exhibit at the Maine State Museum are currently under way.

Chapter 2

Pentagoet and the Development of Early Acadia

The French occupations of Fort Pentagoet exist within a sequence of habitation which spans about 3000 years. Inhabitants included a variety of prehistoric peoples, as well as historic settlements of the French, and English. As is often the case, the chronology is known from records of varying quality, and it is only partially understood. The several prehistoric components of the site are mixed and difficult to interpret, and the period of European contact is poorly represented. Most clearly defined, both in documents and in archaeological remains, are the historical occupations between 1629 and 1674. Yet even for these periods, the remains at Pentagoet represent overwhelmingly the European occupants, to the near exclusion of their Etchemin partners in the fur trade.[1] Further, the English controlled "Penobscot," as they called the site, for nearly half of the forty-five years of 17th-century settlement, but the record of their occupation has been largely obscured by the activities of the larger French garrisons. The nature of the evidence recovered dictates an emphasis on French settlement.

Although Fort Pentagoet was a relatively small establishment, it figured prominently in the development the northeast during the middle quarters of the 17th century. At this formative stage, life on the frontier between New England and Acadia was directed largely by events of regional significance and decisions made in Europe. Consequently many of the factors which shaped Pentagoet also affected its neighbors in Acadia and New England. The site-specific chronology of early Acadia presented here connects the occupations of Pentagoet with those of the few related sites which have been excavated or tested, especially Champlain's Habitation in Québec, Fort Sainte-Marie-de-Grâce, Fort La Tour and The Nicolas Denys Trading Post in Acadia, and Pemaquid and The Clarke and Lake Company in Maine.[2]

Prehistoric Camps c. 1000 B.C. to c. A.D. 1600

Prior to European settlement, seasonally nomadic groups of Indians, the precursors to the historic Etchemins and modern-day Penobscots, occupied the drainage of the Penobscot River. Climate variability, geography, and their dependence on seasonal food resources for subsistence dictated the schedule these Indians followed in moving from place to place. Recent archaeological interpretations suggest that some prehistoric groups may have specialized in the resources of the coast, occupying various littoral sites either year-round or repeatedly at all seasons of the year, while others moved seasonally from the interior to the coast.[3]

The seasonal schedule first described by Europeans was ostensibly quite regular. The Indians would disperse during the winter to travel inland to hunt large game, deer, caribou, and moose. In the summer months, they gathered together on the coasts to procure the abundant marine resources—fish, seal, and shellfish—and, in the early 17th century, to trade furs for European goods such as, "bread, peas, beans, prunes, tobacco, kettles, hatchets, iron arrow-points, awls, puncheons, cloaks, and blankets."[4] This pattern may have developed as an accommodation to European visitors, who generally frequented the coasts during the summer, or it may have begun during late pre-contact times as part of an aboriginal fur trade.[5]

Along both the Bagaduce and Penobscot rivers, numerous middens of the soft shell clam *Mya arenaria* have been identified—the remains of aboriginal encampments. On the peninsula of Castine, within the town's limits, were several small shell heaps, but later European occupations have disturbed the majority of these middens extensively, including those into which Fort Pentagoet intrudes. The recent archaeological excavations have produced stone tools, pottery, and faunal material, from both mixed and undisturbed contexts, which indicate at least three episodes of aboriginal occupation of the site between about 1000 B.C. and A.D. 1600.[6]

Contracting stemmed projectile points, large rhyolite flakes, and edge-battered cobbles are thought to represent a Late Archaic Period occupation of the site, dating as early as 500 to 1000 B.C. (Figure 2.1*f–g* and Figure 2.2*a–e*). Most of these lithics have been produced from the reduction of cobbles which were available to these prehistoric stoneworkers on the beach. Thin, grit-tempered, cord-wrapped stick impressed sherds characterize a later Ceramic Period occupation from A.D. 1 to 1000 and perhaps later, while dentate stamped pottery can be more tightly dated to the period A.D.

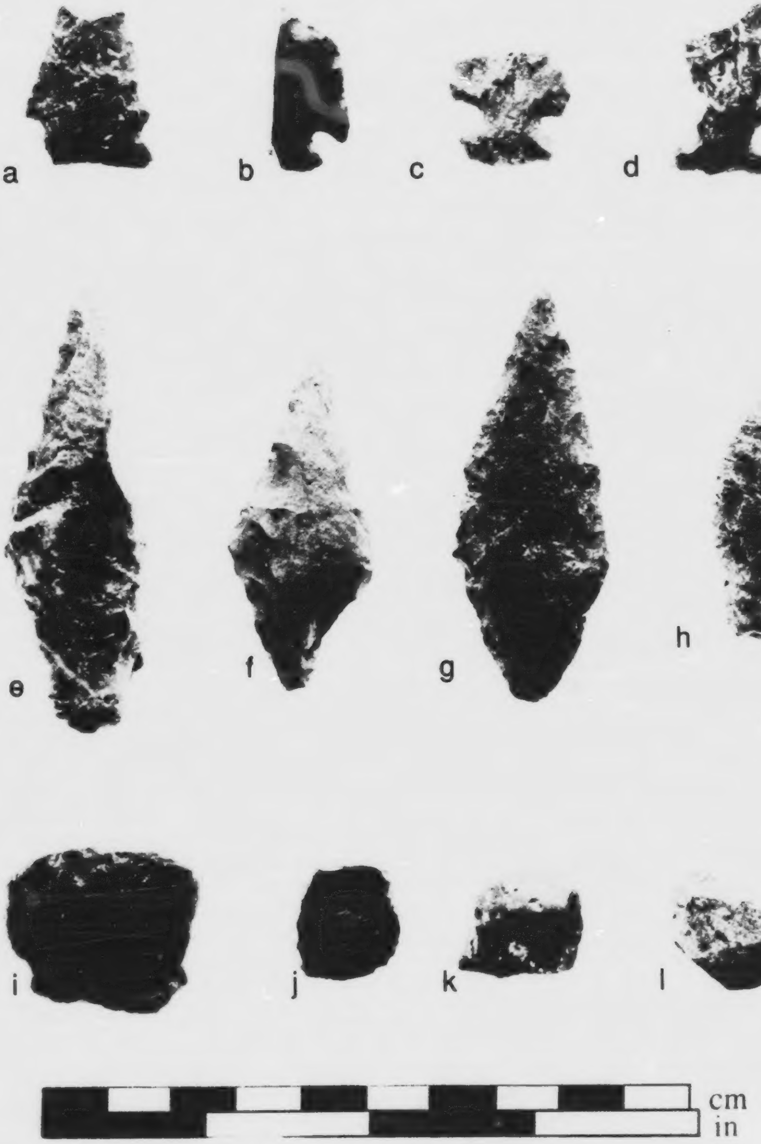


Figure 2.1 Aboriginal projectile points and scrapers from Pentagoet: *a–d*, side- and corner-notched projectile points; *e–f*, bifacial tools (aborted) ; *g*, contracting stemmed point; *h*, expanding stemmed point; *i–l*, end-scrapers. Most specimens appear to be of cherts from the northeast.

350 to 750 (Figure 2.4*a–b, e*). These ceramics were associated with small side- and corner-notched points and small end-scrapers of local rhyolite and a variety of imported cherts (Figure 2.1*a-d, j–l*).[7] While the majority of aboriginal material can be attributed to these earlier periods, two soapstone pipestems (Figure 2.3*a–b*) an Iroquoian-like rimsherd (Figure 2.4*c*) suggest some use of the site at or shortly before European contact. Although no artifacts other than fire-cracked rock were associated with it, one aboriginal hearth produced enough charcoal to be radiocarbon dated. The date, 410 ± 70 B.P. (A.D. 1470 to 1610), gives further evidence of late occupation, and suggests that this site was occupied at least as a seasonal encampment when Europeans first settled in the area.[8] Native peoples continued to frequent the

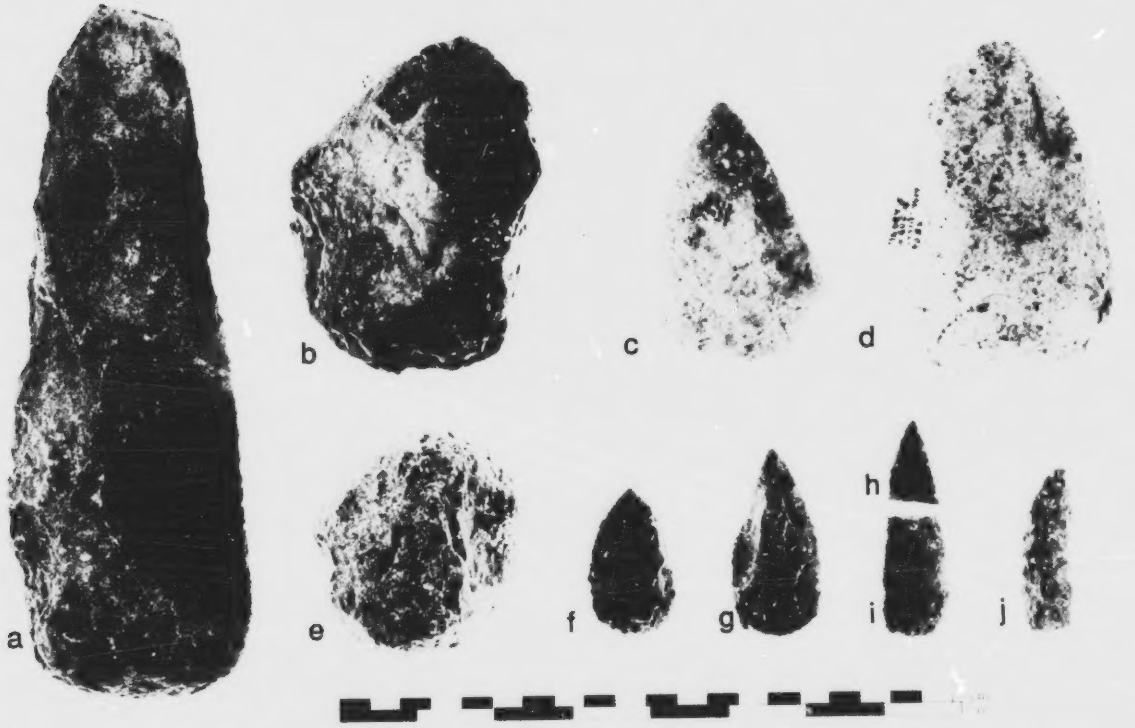


Figure 2.2 (*top*) Cobble tools, flakes and bifaces : *a*, large unifacially worked cobble; *b*, edge battered cobble; *c–d*, large flakes; *e*, hammerstone, *f–j*, small bifaces. All specimens of Kineo rhyolite except for the granitic hammerstone.

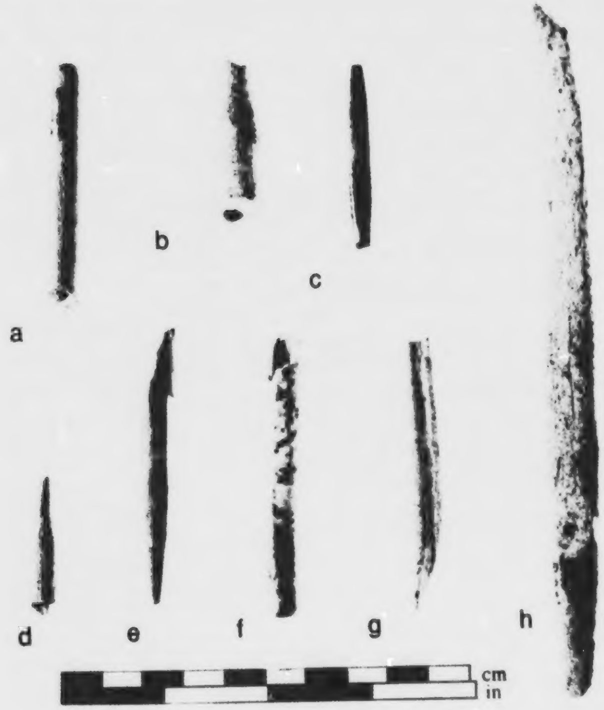


Figure 2.3 (*left*) Worked bone and ground-and-polished stone tools: *a*,*b*, soapstone pipe stems; *c*, possible stone wl; *d–e*, bone harpoon fragments; *f*, reworked bird bone; , bone awl; *h*, bone unidentified bone tool.

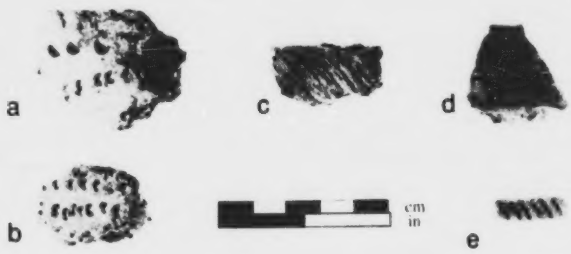


Figure 2.4 Aboriginal pottery: a-b, cord-wrapped stick impressed fragments; c; incised rimsherd; d, incised Iroquois-like rimsherd; e, rimsherd with rocker-dentate impressions.

immediate vicinity throughout the 17th century.

Contact c. 1610–1628: "The French Trade With Them for Red Cassocks and Other Trifles"

Beginning in the early 16th century, European explorers ventured up the Penobscot River in their search for a new route to Asia—some continuing to the limits of navigation at Bangor. As early as 1524 Giovanni da Verrazano, sailing under a commission from Francis I of France, explored the coasts from Georgia to Cape Breton, including Penobscot Bay. The following year Estevan Gomez, a Portuguese on a similar mission for King Charles V of Spain, navigated the Penobscot to Bangor. For both Gomez and Verrazano, the search for Norumbega, a fabled city of gold thought to be located at about forty-five degrees latitude, became the focus of their expeditions. Other explorers, including Simon Ferdinando in 1579 and John Walker in 1580, continued to seek Norumbega. Finally in 1604/1605, Samuel de Champlain, after his voyages in North America and his brief stay on Ste. Croix Island, concluded that Norumbega would have had to lie within the Penobscot drainage and that the city's existence was a myth.[9]

Before the establishment of the de Monts settlement on Ste. Croix in 1604/1605 and the Popham Colony 1607/1608 no real attempt had been made to establish permanent habitations in Maine. Although fishermen did begin to frequent the Maine coast in the early 1600s, it was not until the 1620s that they came in significant numbers.[10] Traders such as Claude de La Tour may have established outposts on the Penobscot between c. 1610 and c. 1613. Nicolas Denys, a contemporary of La Tour, wrote about the Penobscot River, an area that he never visited personally, that "the fort of Pentagoüet had been built by the late Monsieur de La Tour," and that, having been captured by the English in 1628, it was restored to the French c. 1635.[11] Even though Denys' information was second-hand, other documentary sources allude to La Tour's establishment on the Penobscot.[12] Henry Hudson, in his 1609 exploration of Penobscot Bay, observed that the native peoples of the region were quite familiar with Europeans, particularly French traders. Not only was Hudson greeted by an Indian "who knew French words," but by a number of "country people" sailing in French shallops and possessing European trade goods, "for the French trade with them for red cassocks, knives, hatchets, copper kettles, trevits, beades, and other trifles."[13] Unfortunately, no archaeological evidence for this first French post has been found, and it is unlikely that it was located at the later site of Fort Pentagoet.

While French traders apparently made frequent voyages along the Maine coast to barter with the Indian population, France made no further attempts at actual colonization until the establishment of a mission on Mount Desert Island in 1613. Under the patronage of Madame de Guercheville, Father Pierre Biard, set out with three other Jesuits and forty-eight men to establish a new colony on the Penobscot River at "Kadesquit" (Kenduskeag). Instead, because of fog, they put in at Mount Desert Island. Assured by the natives that Mt. Desert Island would make a fine mission site, Biard established his colony there, naming it Saint-Sauveur. Unfortunately, the settlement lasted only a few weeks before being destroyed by an Englishman, Samuel Argall, sailing from Jamestown, Virginia. After burning Saint-Sauveur, Argall took two Jesuits and some of the colonists to Virginia, but allowed the rest of the company to find what passage they could back to France. The Virginia Company saw the French presence as a threat to their North American claims, and the colony ordered Argall to return to New France and destroy the remaining settlements: the abandoned de Monts settlement on Ste. Croix Island and Port Royal, founded in 1605 by the Ste. Croix survivors. No mention was made of a European settlement on the Penobscot River at this time.[14] A settlement on the Penobscot is indicated on the maps of Captain John Smith, who explored New England's coasts in the following year, 1614, but it was apparently Indian.[15]

The race to found permanent colonies in North America came to a temporary halt as both England and France became more involved in internal affairs. English attempts to colonize New England were not renewed until the 1620s. Even then there were only two noteworthy attempts to found farming communities—Plymouth (1620) and Agamenticus (York, Maine 1628). The focus of settlement from Massachusetts to the St. George River in Maine was based primarily on extractive industries rather than agriculture: the dry cod fishery and, to a lesser extent, the fur trade.

Penobscot 1629-1635: "A Convenient Place for Trade"

By 1625, following an extremely successful "trial" voyage to the Kennebec River, the Plymouth Colony had discovered the potential of Maine's fur trade . Soon the colony began to rely on this profitable endeavor as a source of revenue with which to repay the colony's debt to its London investors. Isaac Allerton, the colony's representative, reached an agreement with the company's London creditors to buy out their stock in the company with profits from the fur trade, and to obtain an enlargement of the colony's patent. Their first truck house, "Aptuxet," was established on Buzzards Bay shortly thereafter in 1627.[16] In 1629 the colony set up a second trading post at "Kennebec" on the river of that name in Maine (Figure 2.5).[17]

Acting without the Pilgrims' consent, Allerton also sent out at the same time a "profane young man," one Edward Ashley, to manage a third venture near the mouth of Penobscot River, at what was later to become the site of Fort Pentagoet. Ashley's trade, however, "prejudiced" the company's business on the Kennebec. As the Plymouth Colony supplied both of these competing posts with wam-

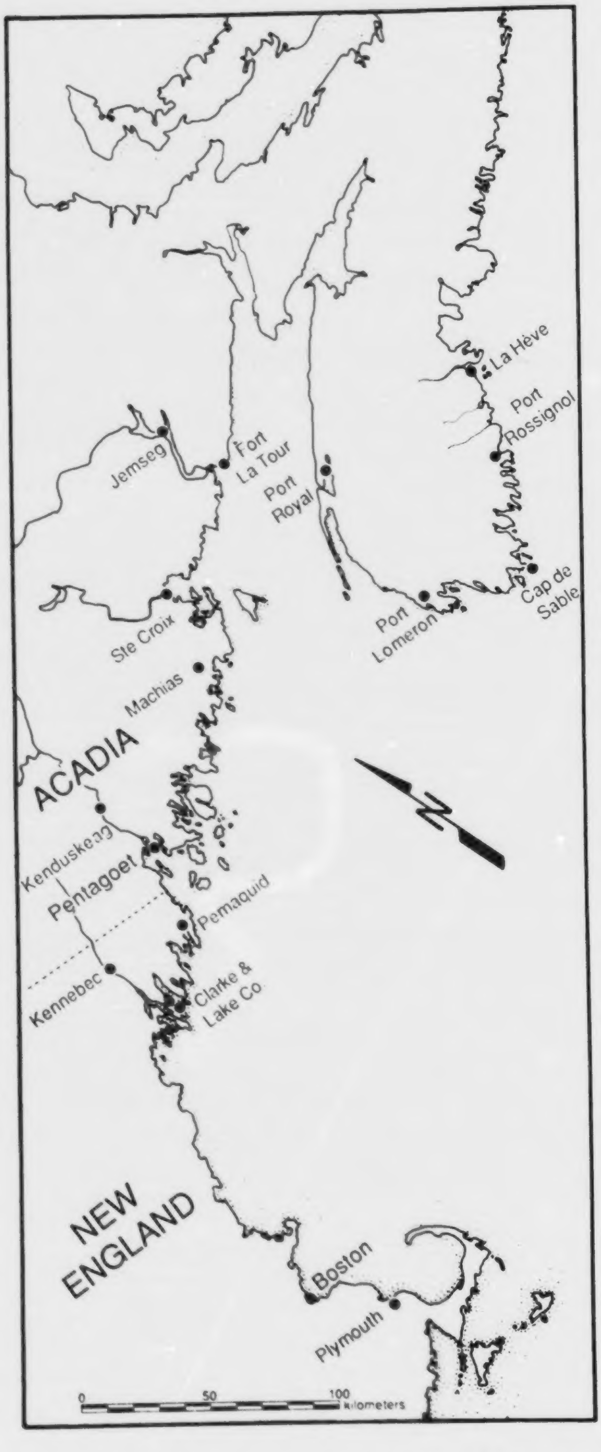


Figure 2.5 Major settlements on the 17th-century Anglo-Acadian coast.

pumpeag and corn, in order "to prevent a worse mischief," the company "resolved to join in the business." Thomas Willet was sent to "Penobscot," as the post was named, to join Ashley and to oversee the operation of the truck house.[18] Yet even with their own agent at Penobscot, the Plymouth company failed to realize a profit. Serving, in effect, as an agent for the company's creditors in London, Ashley sent the post's beaver pelts directly to England rather than via Massachusetts. Nevertheless the company continued to provide him with trade goods, supplies and assistance. In 1630 this arrangement ended when the Plymouth Colony ousted Ashley, convicting him of "trading powder and shot with y^{e} Indians."[19]

Ashley's relationship with the native population was, at best, unacceptable to the Plymouth Separatists. According to Governor William Bradford, Ashley "lived among the Indians as a savage and went naked amongst them and used their manners, in which time he got their language." While his ability to deal with the native population was surely an asset, his assumption of their ways made him, like many other Englishmen on the frontier, a social deviant in Bradford's eyes. Perceived as even more threatening to the safety of the colony were Ashley's occasional sales of powder, shot, and arms to the Indians. While these exchanges were prohibited by royal edict, they provided a key attraction for the Indians, who were rapidly becoming dependent upon firearms for hunting. At least six of the post's servants and Thomas Willet testified to Ashley's indiscretions, which included not only the sale of powder, shot, rapiers, and knives, but also repairs performed on firearms. Warned not to sell firearms to the Indians, Ashley even went so far as to "loan" guns to them. For these violations, Ashley was sent back to England, thus ridding the colony of his bothersome presence at Penobscot.[20]

After the dismissal of Ashley, various misfortunes continued to plague the Plymouth post at Penobscot. In 1631 Isaac Allerton once again sought to divert business from the company with the establishment of a trading camp still further east at Machias. Allerton's decision to establish this new post was made against the better judgment of his partner Richard Vines of Saco and was in direct conflict with French claims to the Ste. Croix region. Charles de La Tour, son of Claude, promptly expelled the English and seized their goods. In that same year a company of Frenchmen and a "false Scot" robbed the house at Penobscot. When the raiding party arrived, the truck master and a number of the company were absent, leaving behind a garrison of only three to four men. The visitors requested permission to haul their pinnace ashore to repair leaks. Having gained access to the post, they proceeded to "rifle" the truck house of £500 worth of beaver, various trading goods—coats, rugs, and blankets— and some biscuit.[21]

These conflicts on the frontier paralleled a renewed interest of both the French and English governments in promoting and protecting their North American possessions at each other's expense. In a report to Cardinal Richelieu in 1626, a renowned naval captain, Isaac de Razilly, suggested that a well-endowed trading company be organized for New France. Further, he asked that efforts be made to block English settlement north of the 36th parallel and to increase the population of Acadia with the addition of three to four thousand settlers. In response to Razilly's report, the *Compagnie de la Nouvelle France*, otherwise known as the *Compagnie des Cent Associés*, was founded in 1627.[22] In London that same year, a company promoted by the merchant Gervase Kirke was formed to capture the French settlements on the St. Lawrence and take over the fur trade.[23] The English at this time also claimed proprietary rights to Acadia. Sir William Alexander had been named Baronet of New Scotland in 1621 by James I, granting him the territory from the Ste. Croix River to the St. Lawrence River.[24] Kirke and his five sons allied themselves with Alexander, in order to take Québec and establish in Acadia a new colony, "New Scotland"—goals they were soon to realize.[25]

Just when these opposing companies were formed, war broke out between England and France. In 1628 four ships loaded with supplies and prospective colonists set out from France for Champlain's Habitation at Québec and for the La Tours' stronghold at Cape Sable. A group of English buccaneers headed by the Kirkes intercepted the company's vessels off Nova Scotia and took Claude de La Tour prisoner to England.[26] While in England, La Tour apparently negotiated an agreement with Alexander by which he and his son Charles, who had remained at Cape Sable, would be made Baronets of New Scotland in return for their allegiance and recognition of the legitimacy of Alexander's patent.

Hoping to derive revenue from his New World possessions, Alexander sent a group of "Scottish" settlers to the former French habitation at Port Royal in 1629, and sold baronies in his new colony to a number of noblemen, including Claude de La Tour. Even with the support of the elder La Tour, however, Alexander's settlement was short-lived.[27] In 1631 Charles I decreed that Alexander's colonial experiment in Port Royal come to an end, as New Scotland had become a pivotal English concession in peace negotiations with France.[28]

In 1632, as a condition of the Treaty of Saint-Germain-en-Laye, the English returned to the French the entire region of Acadia, which included the coast of Maine down to Penobscot Bay. Isaac de Razilly, now Lieutenant General of New France, and Charles de Menou d'Aulnay, one of his lieutenants, set out for Acadia. Shortly after his arrival in Acadia, Razilly set out to retake Port Royal. Alexander's Scottish garrison at Port Royal surrendered peacefully to the French, and the settlers eventually returned home to Scotland.[29] Razilly then turned his attention to Penobscot, or "Pentagoet," where the Plymouth Colony illegally continued their fur trading operations. In 1635 he sent thirty year old Charles d'Aulnay to Pentagoet to reestablish French authority. Upon arrival at Penobscot, d'Aulnay informed Willet that he was taking:

> possession of the house in the name of the King of France. And partly by threatening and other wise, made, Mr. Willet, their agent there, to approve of the sale of the goods there unto him, of which he set the price himself in effect, and made an inventory thereof, yet leaving out sundry things. But made no payment for them, but told them in convenient time he would do it if they came for it. For the house and fortification etc. he would not allow nor account anything, saying that they which build on another man's ground do forfeit the same. So thus turning them out of all, with a great deal of compliment and many fine words, he let them have their shallop and some victuals to bring them home.[30]

The loss of the post and all its goods, prompted the Plymouth colonists to retaliate. With assistance from the Massachusetts Bay Colony, the company hired *The Great Hope* of Ipswich, commanded by "one Girling."[31] In return for the recapture of the post, Girling was to receive "700 pounds of beaver," which would be given to him on the spot; if he failed, he would receive nothing. Miles Standish was appointed to pilot the vessel to Penobscot and to hand over the furs in payment when and if the deed was accomplished. When the *The Great Hope* and Standish's bark arrived at Penobscot, Girling began "to shoot at a distance like a madman, and did them no hurt at all." Further, the French had taken some steps to fortify themselves as "they lay close under a work of earth." Girling soon ran out of powder and Standish went to procure more but, "understanding by intelligence that he [Girling] intended to seize on the bark and surprize [steal] the beavor, he [Standish] sent him the powder and brought the bark and beavor home.... Girling never assaulted the place more." The expedition had failed and William Bradford in his journal duly noted that "the French were likely to fortify themselves more strongly, and [were] likely to become ill neighbors to the English."[32]

Pentagoet I 1635–1654: "The Envy of the French One Against Another"

Only three months after regaining Penobscot, Isaac de Razilly died unexpectedly. During his brief tenure in Acadia, Razilly had attempted to increase the population of the colony and to develop an economy based on the region's abundant natural resources: fish, fur, and timber. Razilly's death left Acadia in the hands of three entrepreneurs: Charles de La Tour, Nicolas Denys, and Charles de Menou d'Aulnay. But it was d'Aulnay, the founder of Pentagoet, who was appointed by the Razilly-Cordonnier Company as Razilly's successor (Figure 2.6).[33] The initial period of peaceful coexistence

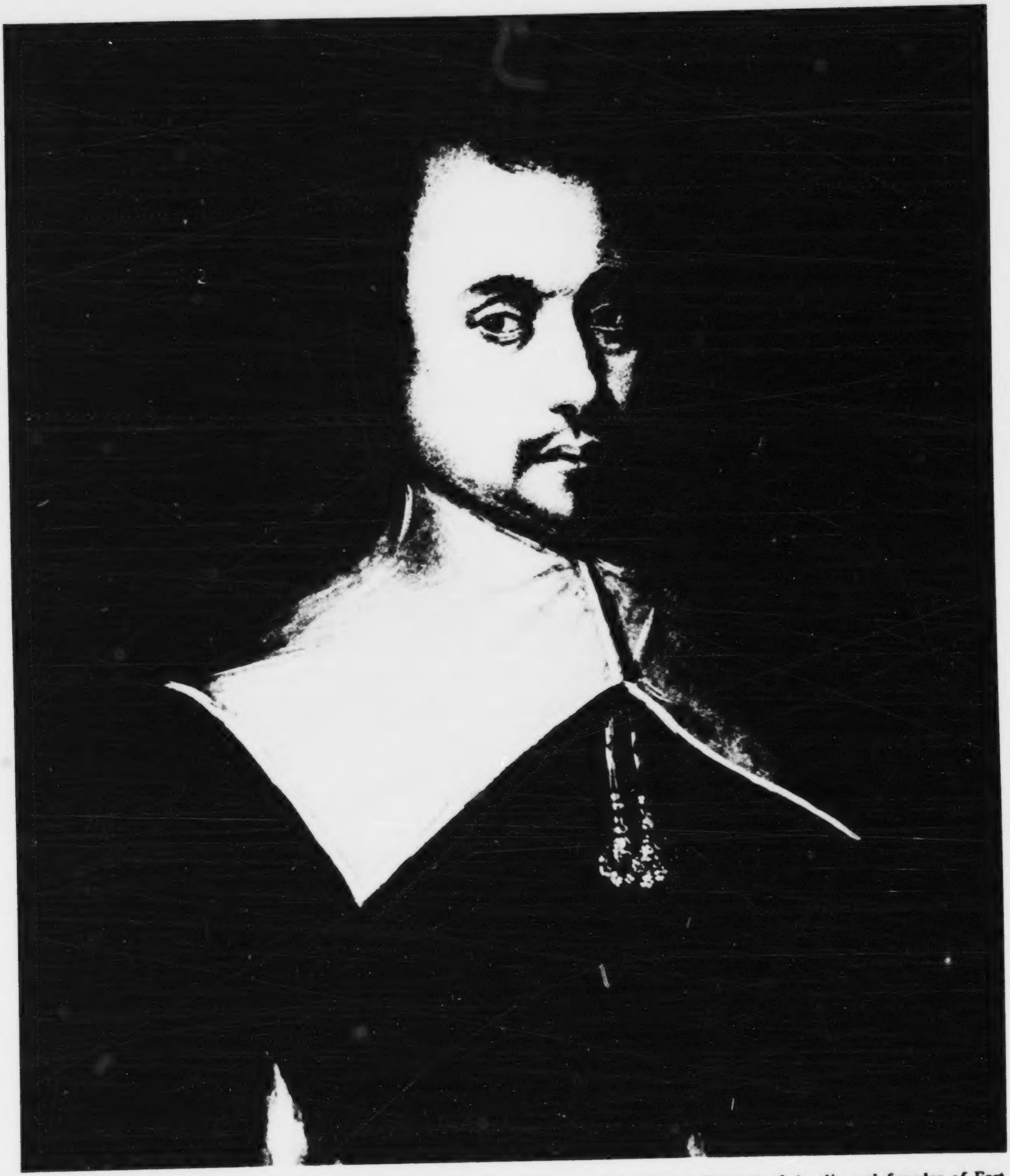


Figure 2.6 Charles de Menou d'Aulnay, Sieur de Charnisay, Governor and Lieutenant-General of Acadia and founder of Fort Pentagoet, at age 39, c. 1644. (New Brunswick Museum)

and prosperity which had prevailed under Razilly soon came to an end. The source of discord, according to Nicolas Denys, was D'Aulnay's attitude towards colonization. Razilly "desired nothing except to make known its [Acadia's] goodness and to people it," while d'Aulnay, "on the contrary, feared that it would become inhabited."[34] Denys endorsed Razilly's original strategy of extensive colonization based on fishing, lumbering, and agriculture, while d'Aulnay supposedly wished to confine settlement to protect his interests in Acadia and to establish a monopoly of the fur trade at the expense of Denys and La Tour.[35] Consequently the three became engaged in a bitter power struggle to control the development of Acadia.[36]

At Razilly's death, Acadia consisted of a number of small habitations containing no more than three hundred settlers: La Tour's settlements at Cape Sable and St. John, Razilly's former colonies at Port Royal and La Hève, Denys' establishment at Port Rossignol,[37] and d'Aulnay's outpost at Pentagoet—garrisoned by only eighteen men.[38] D'Aulnay quickly alienated both La Tour and Denys. In 1636, Denys claims, d'Aulnay forced him to abandon his timber business near La Hève, leaving behind some 20,000 livres in sawn boards. Denys returned to La Rochelle, where he served as an agent with the *Compagnie de la Nouvelle France* before returning to Acadia.[39] Charles de La Tour left the Cape Sable post, Fort Saint-Louis, for his newly fortified establishment on the St. John River, Fort Sainte-Marie, now generally known as Fort La Tour. Meanwhile, d'Aulnay moved Razilly's colonists from La Hève, where the focus had been on the fisheries and the timber industry, to the rich agricultural lands of the Annapolis Basin at Port Royal, which he made his headquarters.[40]

Relations between d'Aulnay and La Tour deteriorated rapidly, and an effort by Louis XIII in 1638 to reconcile the differences between the two only compounded the problem. The king's edict created two overlapping spheres of influence—d'Aulnay was granted Pentagoet and La Tour's fort on the St. John, while La Tour was granted Port Royal, d'Aulnay's stronghold.[41] Following this decree, d'Aulnay sought to test his claim to the St. John River, establishing a small contingent of traders and a Capuchin missionary there. In 1639, two of the traders were killed by the Indians, for which action d'Aulnay blamed La Tour. Shortly thereafter, La Tour, who apparently had no intention of giving up his new fort on the St. John regardless of the royal edict, seized two ships carrying supplies to Pentagoet, and impressed the nine crew members into service enlarging and strengthening Fort La Tour. These initial hostilities culminated in a naval engagement at Port Royal in 1640 between La Tour's two armed pinnaces and d'Aulnay's *Notre Dame* and *Saint François*, which were returning from Pentagoet.[42] His ships outgunned and having run aground, La Tour surrendered. After a brief imprisonment at Port Royal, d'Aulnay allowed La Tour and his company to return to the St. John.[43]

Up to this time Massachusetts had shown little inclination to become embroiled in Acadian affairs. Both the Plymouth Colony and the Massachusetts Bay Company were occupied with matters which threatened the security of their colonies: the Pequot Wars, and the internal religious conflict fostered by Puritan dissidents Roger Williams and Anne Hutchinson.[44] Thus it must have been somewhat of a surprise when "Monsieur Rochette, a Rocheller and a Protestant," came to Boston as an emissary from La Tour in November of 1641 to seek, "Liberty of free commerce,... assistance against d'Aulnay of Penobscott, who he had war with...[and permission to] make return of goods out of England by our merchants."[45] The council readily granted the first request, as for some time Massachusetts merchants had traded informally with the French in Acadia, but denied the other two because they had "no letters or commissions from la Tour... but only letters [of introduction] from Mr Shurt of Pemaquid."[46]

As agreed in 1641, some Boston merchants took supplies to La Tour's fort on the St. John, but on their return they stopped at Pemaquid where they encountered d'Aulnay. La Tour had sent a number of letters back with these gentlemen which his rival intercepted. In response to La Tour's continued requests for aid, d'Aulnay sent to Governor Winthrop a copy of an arrest warrant signed by Louis XIII. This document revoked La Tour's powers and holdings in Acadia, transferring them to d'Aulnay. In the accompanying letter, d'Aulnay threatened to make a "prize" of any ship, French or English, trading with La Tour.[47]

D'Aulnay strengthened his position substantially in January 1642 by buying out the shares of Isaac's brother, Claude de Launay-Razilly, in the Razilly-Cordonnier Company. In addition, he was granted those shares given to the Capuchins by Cardinal Richelieu. Thus d'Aulnay had gained control of virtually all of Acadia from Nova Scotia to the Penobscot River with the exception of La Tour's stronghold on the St. John River. To meet his colony's financial obligations, he allied himself with Emmanuel Le Borgne, a Huguenot merchant of La Rochelle. In essence, Le Borgne became his chief creditor and purchasing agent in France.[48]

In September 1642, Le Borgne, acting in d'Aulnay's behalf, engaged two master stone masons, Jean Garnier and Jacques Merlet, to ply their trade in Acadia for three years.[49] Their duties may have included expansion or renovation of Fort Pentagoet. Massachusetts had left d'Aulnay in peace since Plymouth's initial attempts to recapture Penobscot, as d'Aulnay had assured New Englanders that France's claims extended no farther than to the nearest English habitation, Pemaquid. Yet La Tour's attempts to enlist Massachusetts' aid against d'Aulnay jeopardized the security of Pentagoet; the opportunity to regain "Penobscot" and secure their borders was indeed a temptation for Massachusetts.[50]

La Tour himself went to Boston to plead his case to

Governor Winthrop in June, 1643. D'Aulnay had succeeded in preventing supplies and new recruits from reaching La Tour's fort by blockading the mouth of the St. John River, and La Tour hoped that Massachusetts would give him the military assistance necessary to raise the siege. Although Governor Winthrop and the Council of Massachusetts Bay decided that they would not aid him directly, they did agree to allow La Tour to recruit volunteers. By mortgaging his fort on the St. John to two Boston merchants, Thomas Hawkins and Edward Gibbons, La Tour was able to engage "four ships and a pinace with seventy or eighty volunteers" to assault d'Aulnay's habitation at Port Royal. When La Tour and his mercenary force arrived at Port Royal, Captain Hawkins, commander of the English vessels, refused to assault d'Aulnay's settlement. La Tour's men and thirty New England volunteers apparently set ashore, but the damage they effected was limited. They burned a mill, killed three of d'Aulnay's men and some cattle, and captured a bark loaded with pelts and other goods, but otherwise d'Aulnay's holdings remained intact.[51] The ill conceived raid was recognized as an extreme and unnecessary provocation of d'Aulnay, the legal representative of French authority, and the resulting scandal contributed to Winthrop's replacement as governor of the Massachusetts Bay Colony the following year.

On their way to the St. John outpost in 1644, three creditors of La Tour—Richard Vines of Saco, Abraham Shurt of Pemaquid, and Thomas Wannerton of Piscataqua—put in at Pentagoet where d'Aulnay detained them. After a few days, "for Mr Short's sake, to whom d'Aulnay was in debt, they were dismissed," and continued their voyage. While at Fort La Tour, these gentlemen and their company were encouraged to attack Pentagoet, which "was weakly manned and in want of victual." Instead, upon their return, they burned a farm house about six miles from the fort, took the occupants prisoner, and killed the livestock.[52]

Naturally d'Aulnay saw the attack on Port Royal, followed by the burning of the farm near Pentagoet, as unprovoked meddling by Massachusetts in Acadia's internal affairs. Acting with diplomatic restraint, however, d'Aulnay sent his emissary, François Marie de Paris, a Capuchin, to Boston to negotiate a peace agreement and to propose free trade between the two colonies. In the resulting treaty d'Aulnay received recognition as governor and lieutenant general of Acadia in New France and assurances that the English would keep "a firm peace" with him.

In the winter of 1644–45, shortly after Marie's visit, La Tour arrived in Boston to petition Massachusetts anew for aid, leaving the garrison at Fort La Tour under the command of his wife, Françoise Jacquelin. In his absence, however, the Récollet missionaries and eight or nine soldiers, not wishing to be part of a rebel cause, left for Port Royal, thus defecting to d'Aulnay's side. D'Aulnay seized the opportunity to mount an expedition against the St. John outpost, and eventually succeeded in capturing and destroying his enemy's last stronghold.[53]

Madame La Tour, taken prisoner, fell ill and died within a few weeks. Her husband, now in his mid fifties, had lost everything, and retreated to Québec.[54] With the destruction of La Tour's fort, d'Aulnay was the clear victor and master of all Acadia. Nevertheless the conflict had been costly to all parties involved. La Tour owed more than £2000 to Boston merchants for supplies and assistance, debts which he could not repay.[55] D'Aulnay's blockade, financed by Le Borgne, was said to have cost "neer 800 l[ivres] per month."[56] The decade of turmoil had all but ruined Acadia financially, and in 1648 d'Aulnay owed Le Borgne more than 200,000 livres.[57] The sparsely populated colony remained on shaky economic footings for the remaining years of d'Aulnay's tenure in Acadia.

D'Aulnay's Acadia fit well the model of settlement put forth by Governor Bradford of Plymouth who observed in 1635 that "To the great danger of the English, who lie open and unfortified, living upon husbandry," the French were "closed up in their forts, well fortified," and lived "upon trade, in good security."[58] Without royal assistance, d'Aulnay managed to construct three forts—those at Port Royal and Pentagoet, and a new post on the St. John—all supplied and armed with his own funds and manned by his own personal staff. The principal source of revenue in Acadia was indeed the fur trade, and the pelts of moose, beaver and marten became the generally accepted medium of exchange. After 1645, d'Aulnay, with forts on both the St. John and Penobscot rivers, successfully monopolized the colony's fur trade. Yet the profits from the fur trade proved insufficient to cover his debts to Le Borgne, who returned to France in 1648 to continue legal proceedings to repossess d'Aulnay's Acadian holdings.

While the fur trade was the economic mainstay of Acadia, it was not the only endeavor. In spite of the accusations of Denys and the Company of New France that d'Aulnay had done nothing to colonize Acadia or convert the natives, d'Aulnay, like Razilly before him, had attempted to increase Acadia's population and to develop its agricultural potential. Growth over the period 1635–1650, however, was not spectacular. Razilly initially brought "300 selected men," including soldiers, laborers, artisans, Capuchin missionaries, and at least twenty families, to La Hève, where he constructed Fort Sainte-Marie-de-Grâce and established his principal settlement in Acadia.[59] After the construction of the fort, however, many of the colonists left—some returning home, some dispatched to Pentagoet and other outlying settlements.[60] According to Denys, only forty male inhabitants remained in La Hève in 1635, amounting to a total population of perhaps one hundred Europeans in all.[61] After Razilly's death La Tour and d'Aulnay continued to bring over a number of indentured servants and colonists to Acadia. In 1636 Claude de Razilly, brother of Isaac, engaged two "salt makers and builders of saltmarshes" to produce salt for the fisheries.[62] A by-product of salt making was the reclamation of tidal marshlands for growing grain and grazing cattle. Guillaume Desjardins recruited twenty-five soldiers and artisans in 1642 to serve La Tour, some for three years, some for two. La Tour's men came from many different parts of France: "Normandy, and Brittany, Perche, Lorraine, the Loire district, several from the area around La Rochelle... and Switzerland."[63] D'Aulnay apparently recruited a few potential colonists himself, and engaged a number of skilled craftsmen through Emmanuel Le Borgne in La Rochelle.[64] Acadia in 1650 consisted of a few small, fortified communities— among them Port Royal, and the posts on the St. John, at Cape Sable and at Pentagoet— and Acadia's population numbered approximately five hundred individuals.[65]

Documents tell little of the garrison established at Pentagoet except that it numbered 18 men in 1635 and 1654.[66] In this period, the soldiers at the fort were not from organized French regiments but were, in effect, d'Aulnay's private army. The employees at Fort Pentagoet probably included a number of Razilly's original colonists.[67] Nevertheless, only one name has been linked directly to the site, that of Germain Doucet, also called "La Verdure," the captain of arms.[68]

At Pentagoet, the opportunities for agriculture were limited, but d'Aulnay still experimented in farming. While the diking of tidal flats was common in Nova Scotia, it was not possible to practice this form of agriculture at Pentagoet. Still d'Aulnay kept a farm with cattle and a mill west of the Penobscot River near present-day South Cushing, and planted an orchard and cleared stretches of land adjacent to Fort Pentagoet.[69]

The forests of white oak, white pine, and spruce about Pentagoet also encouraged the development of a shipbuilding industry. As early as 1636 at least one pinnace of 60 tons had been assembled, and it is likely that another vessel built here was the *Saint François de Pentagoet*, which made round trip voyages to La Rochelle in 1641 and in 1646. According to various memorials concerning d'Aulnay's accomplishments in Acadia, he was said to have constructed "two small ships of seventy tons each, five pinnaces, and several sloops," perhaps all of which were built at Pentagoet.[70]

Although d'Aulnay did attempt to derive profits from the exploitation of Acadia's natural resources, the colony was not at all self-sufficient. It relied heavily on French durable goods, and problems of supply often forced the French to procure goods from Boston or Pemaquid. Both La Tour and d'Aulnay were well known to Abraham Shurt of Pemaquid and the Bay merchants.[71] On numerous occasions, d'Aulnay hired English ships to carry food, furs, trade goods and munitions to and from his various posts.[72]

In 1650, at the age of forty-five, d'Aulnay died of exposure in a canoeing accident near Port Royal leaving a heavily encumbered estate, a wife, and eight children.[73] The death of d'Aulnay once again threw Acadia into chaos, dividing power among four factions: d'Aulnay's heirs including his father and his widow, his creditor Emmanuel Le Borgne, and the two rivals whom he had dispossessed, Charles de La Tour and Nicolas Denys. La Tour's friend Nicolas Denys soon returned to Acadia, establishing himself at Fort St. Pierre, on a portage leading from the Straits of Canso to the interior Bras d'Or Lakes of Cape Breton.[74] La Tour returned to the St. John River in 1651, and took over the fort and habitation from d'Aulnay's widow, Jeanne Motin. Ever the opportunist, La Tour, now in his sixties, married d'Aulnay's widow in 1653, thus joining forces against Le Borgne. Having officially regained holdings and privileges that had been lost in 1645, and having acquired his enemy's property as well, La Tour had substantially strengthened his claim to Acadia.[75] The following year, however, the struggle among these French factions for control of the region was resolved in a manner which none of them could have anticipated.

England and the Netherlands were at war in Europe, and hostilities extended to their respective American colonies. Oliver Cromwell commissioned two New Englanders— Major Robert Sedgwick of Charlestown and his son-in-law Captain John Leverett, the future governor of Massachusetts—to lead an expedition from England against New Netherlands. But by the time the expedition reached Boston, a peace had been concluded between the two warring parties. Rather than return to England having accomplished nothing, Sedgwick "thought [it best]... to spend a lyttle time rangeing the coast against the French." His forces in four ships— the *Augustine*, *Church*, and *Hope* and a small ketch— Sedgwick arrived at La Tour's establishment on the St. John River on July 14, 1654. The fort, which was defended by seventy men and seventeen pieces of ordnance, surrendered within three days. The larger fort at Port Royal, with its garrison of one hundred and thirty five fighting men and its twenty pieces of ordnance, fell just a week later. Pentagoet was not taken until much later, on September 2. Sedgwick noted that "Penobscout," was "a small Fort, yet very strong and a very well composed peece with eight peece of Ordnance one brass, three murtherers, about eighteen Barrels of powder, and eighteen men in garrison."[76]

The conquest of Acadia by the English was complete. The English were not interested in expelling those agrarian families at Port Royal, and allowed them to stay. They did, however, execute the Superior of the Capuchin mission, and sent away the remaining Capuchins together with all the soldiers and sailors. The English determined to remove most of the individuals at the Penobscot and St. John outposts, the principal locations of the fur trade, and at St. Pierre, the chief Acadian fishery, and sent all but "one or two [of the] unfaithful catholics" back to France.[77] Still they allowed key personnel to remain, such as the French truck master at Pentagoet, "Monsieur Peter Crushett," who operated the fur business for them temporarily.[78] For the next sixteen years the English controlled Acadia.

Pentagoet II 1654–1670: Of Fish and Fur

New Englanders rejoiced in the capture of Acadia by Sedgwick's expedition, and the General Court of Massachusetts Bay proclaimed September 20, 1654 a day of thanksgiving.[79] In November Sedgwick and his fleet set sail for England, leaving Leverett temporarily in charge of the garrisons at each of the principal posts: Fort Pentagoet, Fort St. John, and Port Royal. There were no long term plans for the management of the colony, however, as neither England nor France took the conquest seriously. Yet the restitution of the Acadian forts to France, which at first had seemed imminent, soon reached an impasse. The English realized the strategic importance of Acadia and became increasingly aware of its economic potential, while the French, anxious to preserve fragile Anglo-French relations, were unwilling to press for the colony's return.[80]

Superficially at least, the all but forgotten patent of Sir William Alexander of 1629 lent an air of legitimacy to the expedition against Acadia. In fact, the ever resourceful Charles de la Tour used this reasoning in 1656 to resurrect his own claims to Acadia, even though originally he had vigorously opposed his father's involvement in legitimizing New Scotland. Having been taken prisoner to England by Sedgwick, he petitioned the Council of State to revive his family's claims to Nova Scotia by virtue of his former appointment as Knight-Baronet under the Alexander patent. In this he was challenged, however, by the heirs of Major Edward Gibbons, a Boston merchant to whom he had mortgaged his estate on the St. John during his long struggle with d'Aulnay.[81] In an effort to clear the title to Nova Scotia, the council regranted the patent on August 9, 1656 to three men: Sir Thomas Temple, William Crowne, and Charles de La Tour. In return, Temple and Crowne agreed to pay Gibbons' widow £3379 11s and to assume the costs of Sedgwick's expedition and Leverett's garrisons at the Acadian forts (1655–1656), which amounted to an additional £1812.[82] Temple was an impecunious relative of Lord Fiennes, a member of the privy council, and because of these connections he was made governor of Nova Scotia. Crowne, who was a wealthy English merchant, provided essential financial backing for the colony.[83] This tripartite division of Acadia did not last long, for La Tour gave up his property rights to Temple and Crowne in return for a 1/20 share of the annual revenues of the colony.[84] Thereafter the active but aging Frenchman played a diminished role in the English politics of Nova Scotia, and died in 1663 at Port Royal.[85]

Early in 1657, Temple and a large retinue of his servants set sail for Boston, the nearest "civilized" plantation, from where he would govern Nova Scotia. He was followed shortly thereafter by William Crowne. The immediate concern of the two proprietors was managing Nova Scotia profitably, and since neither had any knowledge of the colony or experience in the fisheries and fur trade, they enlisted the assistance of various Boston merchants, especially Thomas Breedon, Hezekiah Usher, and Thomas Lake.[86] Of the three, Lake was probably the most familiar with the region as he had invested in nearby lands in Maine since the 1650s. He and another Boston merchant, Thomas Clarke, had established a successful fishing and trading post on the Kennebec River at Arrowsic Island in 1654.[87] In September 1657, Lake wrote to Leverett concerning Temple:

> I fear his noble spirit will not suit with Acadie, or at least the profit of Acadie will not maintain his post. Myself and some friends have spoken seriously to him for the frugal management of the same. He accepts of advice and saith he will by degrees clear himself of unnecessary charge, which he is at by many servants, that he brought up, who will be as drones to eat up all the honey, that others labour for, and that he will have but two at most, to wait upon himself.[88]

To his detriment, as it turned out, Temple chose Thomas Breedon rather than the more practical and experienced Lake, as his deputy and lieutenant in Acadia.

Not long after their arrival in Boston, Temple and Crowne divided Acadia into two districts to be managed separately: the first from the Muscongus River to the Machias River and the other from the Machias River eastward. This arrangement gave Temple the eastern portion of the patent while Crowne received the western, "in particular the fort of Pentagouet or Penobscot with all the ordnances amunition or other implem^ts^." Other provisions included the sole right of "trucke and trade with the Natives" within their jurisdictions and the authority to license the fisheries.[89]

With the division of the patent, Temple needed to secure new sources of monies to promote his interests in Nova Scotia. In 1658 he formed the Company of Nova Scotia which consisted of eight subscribers each of whom was to advance £100 in the hope that this sum would supply Temple with sufficient working capital to put the colony on firm financial footings. In that same year, the company sent Captain Middleton to Nova Scotia to "visit all the places along the coast," in order to assess the colony's economic potential. In his report, Middleton noted that the chief commodity was fish, followed by fur, timber, coal and fish oil; yet to derive full benefit from these resources he suggested that the company conclude a firm peace with France, secure a new patent, and seek increased financial support.[90]

Unlike Temple, who preferred to reside in Boston, Crowne "tooke possession of Penobscot, [and] dwelt in it."[91] Though few documents from these years of Crowne's tenure mention Pentagoet specifically and few archaeological remains have been identified at the site for this period of occupation, many interesting details of English activity in the Penobscot drainage have been recorded. Temple carried on extensive correspondence with the Plantation Office, and his legal dealings with Boston merchants and with William Crowne also survive. Additional descriptions derive from their heirs, who continued to petition England for compensation for financial losses long after Nova Scotia had been returned to the French.

To increase his profits from the fur trade, Crowne built a trading house further up the Penobscot River, closer to the source of the fur supply. The post was located just below rapids which marked the limits of navigation at Bangor, and which offered especially good fishing for the Indians. Variously called "Negew," "Crowne's Point," and "Kadesquit" (Kenduskeag), it was a subsidiary of Pentagoet, and was manned by four men year-round.[92] In November 1658 Crowne leased Penobscot and Negew to Captain George Corwin and Joshua Scottow, merchants formerly engaged in Acadian trade,[93] for £110 per annum, £55 to be paid in the spring and £55 in the fall. In accordance with the 1656 patent, 1/20 of the revenues were to go to La Tour. An inventory, since lost, set the value of the house and fort at the considerable sum of £571 14s 7d. Two years later, in 1660, Thomas Temple agreed to "lease" the same property from Crowne for a four year period. Included in this agreement were provisions for Temple to maintain the property as he found it, excepting only "fire and Assault of Enemies." These provisions indicate the self-sufficient nature of these remote settlements, mentioning cows, sheep and swine, a fenced orchard with newly planted trees, and various boats, shallops and canoes. Crowne was never to receive "a farthing rent" from this lease, and in effect he lost his portion of the patent permanently to Temple.[94]

Although the fur trade was commonly regarded as a rather lucrative pursuit, it was not without risks. In April 1662, 260 Maquas or Mohawks, having recently broken the peace with the Dutch to the west, arrived at the truck house at Negew and pulled down the fence. Crowding into the truck house, they presented "fower or five girdles of peage [wampumpeag]" to the four surprised Englishmen within, and demanded to trade. Outnumbered and unwilling to offend the Mohawks "in Anye waye but to preserve the sayed house [Negew] and trading goods," the English complied. When the business was completed, these Indians forced the English traders go with them to Pentagoet, where they arrived three days later. The Mohawks then surprised the 100 "Northern Indians" who were temporarily in residence about the fort, and apparently took several of them prisoner. As before, they coerced the English into trading with them—wampum and moose hides for cloth, flour, bread, peas, corn and prunes. Immediately following these transactions, they slaughtered the fort's cattle and headed back to Negew. There they plundered the vacant post, taking away goods valued at £400.[95]

Meanwhile, as Temple struggled to make a profit from his holdings, new claimants to the territory emerged. After the restoration of the English throne in 1660, Thomas Elliott, groom to the bedchamber, and the heirs of the Kirkes, who had "conquered" these lands in 1628, all petitioned Charles II for patent rights to Nova Scotia.[96] To protect his interests, Temple sent his lieutenant, Thomas Breedon, to England to safeguard his patent rights. Rather than represent Temple, however, Breedon helped advance Elliott's cause against the other petitioners. In this Breedon was successful, and secured for himself the governorship of Nova Scotia.[97] His commission included an order commanding Temple to yield up Pentagoet and Fort St. John, together with all their ordnance and ammunition.[98] After Breedon left for New England, the council had a change of heart, and in February 1662 they suspended Breedon's warrant. By this time, however, Breedon had already taken control.[99]

Breedon's commission not only granted him the power to seize Temple's possessions, but also to appoint deputies and officers, "by sea and land, military and civil," and to license trade. In April 1662 Breedon replaced the commander of "Penobscot fort," with one of his kinsmen, and dismissed the rest of the company from "Temple's Imploy." Negew was also confiscated, and its truck master discharged.[100] Simultaneously, however, Charles II reappointed Temple governor with the stipulation that he pay Elliott or his heirs £600 per year rent.[101] Thus Temple regained control of the province, but only by incurring new financial obligations.

Temple's hold on Acadia was challenged not only in England, but in France as well. Even though the colony was in English hands, Louis XIV granted d'Aulnay's former creditor, Emmanuel Le Borgne, the governorship of Acadia in 1657. The following year Le Borgne sent his son, Alexander Le Borgne de Belle-Isle, and fifty men to reclaim a portion of d'Aulnay estate. In May 1658, Belle-Isle attacked Temple's forces at La Hève and appropriated goods valued at £1200.[102] Thus encouraged, the French colonists in Acadia continued to protest against English control; on numerous occasions Temple complained to the Council of State of uprisings at Port Royal and ordered the French there either to submit or "quit their farms."[103]

The vicissitudes of European politics notwithstanding, Thomas Temple's misfortunes stemmed largely from his inability to govern the colony effectively. Acting as an absentee landlord, he took little direct part in the supervision of his affairs, leaving the management of Nova Scotia to Breedon. While it was not this misguided trust which ultimately cost Temple the province, it did ruin him financially. The New England merchants who subcontracted with Breedon made large profits at Temple's expense. A contemporary, describing the state of Nova Scotia, noted, "T. Temple dwells idly at Boston, and is fooled by them.... T. T. suffers them of Boston to trade there and rob the English: fish, coals, furs."[104] While the merchants prospered, Temple remained heavily in debt.

Yet from 1662 until the beginning of the Anglo-French War of 1666–1667, Temple seems to have possessed his estate in relative tranquility. At one point he contemplated turning Acadia into a haven for Quakers, hoping to increase its productivity.[105] By the 1660s he may even have started to reduce his debts using revenue from the regulation of the fisheries and fur trade. The fisheries were taxed at a rate of "twenty-five crowns" per boat, a duty collected by "Colonel Temple or by his creditors for the discharge of his debts."[106] In effect, Temple leased out the land necessary for setting up stages and flakes in the dry cod fishery. At the same time he took measures to insure the perpetuation of this resource: fishing during the spawning season was strictly prohibited, as was disposal of offal in the fishing grounds. The fur trade was similarly controlled, and traders were cautioned against bartering with the Indians except by license.[107]

But Temple's profit margin was slim in the best of circumstances. Summarizing his expenses from 1656 to 1669, Temple noted that Acadia had never yielded above £900 per year, mostly in furs, of which he "had to pay Elliott £600 and Boston merchants £180 to remit it to England, leaving an annual income of £120." In addition he had had to pay Major Gibbons and family £3350, Major Leverett £1800, and La Tour £1200. He had invested £700 in buildings at Port Rossignol, Port La Tour, and Port Royal and was owed by the Indians £2600. His expenses totaled nearly £16,000 in all.[108]

Had it not been for the Anglo-French wars, Temple's Nova Scotian venture might eventually have proved successful. But as proprietor of Nova Scotia, Temple was called upon not only to defend the colony, but also to assist in the war effort by sending supplies to the West Indies. Pleading his case in the third person, he told the Privy Council in 1667:

> "he [Temple] has hitherto not lost a foot of Nova Scotia, though often attempted by the French. Unless his Majesty take compassion on him he is utterly ruined, for he has not received one penny all the war. He has sent an account of the place to the Lord Chancellor, which though uninhabited is the largest of his Majesty's plantations, and incredibly fruitful in mines, especially copper, and in fish, and the climate and land more proper to make salt than France itself."[109]

Yet the council ignored Temple's requests for assistance, and in December he learned of negotiations between England and France which called for the return of Nova Scotia to France for half of the island of St. Christopher (St. Kitts) in the Leeward Islands. In desperation Temple pleaded with the crown to save him from "utter ruin," but the English commitment to Nova Scotia was overridden by the desire to secure a strategic foothold in the Caribbean.

One of the principal stumbling blocks to the negotiation of the peace was the establishment of boundaries, since the limits of Nova Scotia were not necessarily congruent with those of Acadia. After much consideration, the council agreed that "Nova Scotia or L'Acadie... consists chiefly of the forts, places and habitations of Cape Sable, the river St. John, the Port Royal, le Have and all that has been in the possession of the French."[110] Not included in their preliminary considerations was Pentagoet, as there was some difference of opinion as to whether it originally belonged to the French. Eventually, however the territory was extended to include its former bounds, including the Penobscot drainage and continuing along the coast to the St. George River.[111]

On July 21, 1667, the Treaty of Breda between Charles II and Louis XIV was concluded, and Morillon du Bourg was sent from France to receive Acadia's surrender. Du Bourg stopped first at Port Royal where he installed Belle-Isle as governor, and then proceeded to Boston to prod Temple into relinquishing the rest of the country. Temple stalled, insisting that St. Christopher be returned first. In 1669, Charles II sent a sharp reminder to Temple demanding the immediate return of Acadia to the French.[112]

"A Fort with Four Bastions"

With the return of St. Christopher Island to the English, Charles II found it necessary to send yet another stern request to Temple to effect the transfer of Acadia to the French.[113] As Morillon du Bourg, the former emissary, had already returned to France in disgust, Louis XIV commissioned Hector Andigné de Grandfontaine to accept the surrender of the colony from Temple. Grandfontaine was an officer in the Carignan-Salières regiment, comprised of twenty-four companies that had been raised in 1659 to fight the Turks and then sent to New France in 1665 to subdue the Mohawks. In 1666 the regiment was disbanded, and Grandfontaine's company was one of four to be sent home to France. Grandfontaine, who had served with distinction in New France, was one of four officers who offered to raise a company of soldier-settlers and return to Canada. Unlike his fellow officers, who were to establish themselves on the St. Lawrence, Grandfontaine orders were to reestablish French authority in Acadia.[114]

On February 20, 1670 Louis XIV appointed Grandfontaine governor of Acadia and ordered him to embark from La Rochelle with his company, but bad weather kept the *St. Sebastien* in port until May 1. The ship, commanded by Chadreau de la Clochetrie, was a 250 ton frigate, heavily armed, which had formerly served in the vice-admirals' fleet in the West Indies. On this particular voyage she carried Grandfontaine's company of forty soldiers and thirteen officers, a military engineer, and several gentlemen from the Academie Royale des Sciences testing navigation equipment. Finally, after continued delays brought about by inclement weather, the *St. Sebastien* arrived off New England's coast in July.[115] In Boston on July 7, Temple and Grandfontaine signed an agreement which allowed Temple to remove his retainers and portable possessions—"shallops [fishing

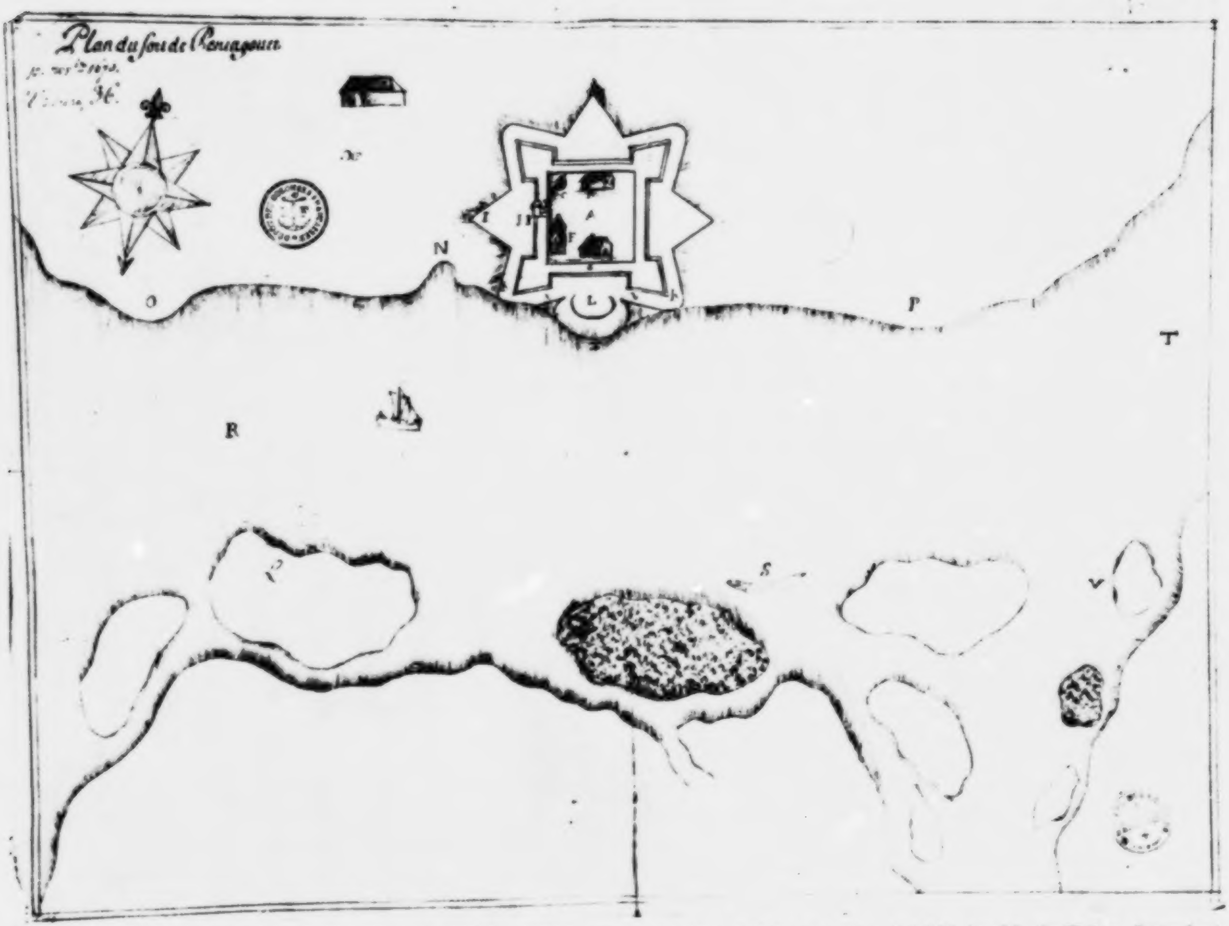


Figure 2.7 "Plan du Fort de Pentagouet, 10 nov$^{\text{bre}}$ 1670," sent to Colbert, Minister to Louis XIV, by M. de Talon, Intendant of New France, November 12, 1670. (Archives Nationales, Paris.)

boats], merchandise and trade goods, livestock and furs"—prior to the actual turnover of Acadia to the French.[116] Following his brief visit with Temple in Boston, Grandfontaine set out for Acadia, stopping at Piscataqua en route, and by the end of July the ship had reached Pentagoet.[117]

Grandfontaine had been instructed that "his principal establishment... it seems, should be located at Pentagoet as the place closest to the lands of the English dominion." The French clearly hoped to establish Pentagoet as a bulwark against English encroachments. Upon arrival he was to pay prompt attention to defense and to protect himself against all "accidents" that might occur. Further, Grandfontaine's orders obliged him to report in detail on the state of the territory—to make "informative reports on the state of the places which will be relinquished to him, containing the fortifications, buildings, the number of inhabitants, their occupations, means and commodities for their subsistence and trade."[118]

On August 6 Captain Richard Walker, who had been managing Pentagoet for Temple, ceremoniously turned over the fort to the French. In accordance with his instructions, a detailed description of the state of the fort was compiled and a complementary document was made for Temple so that he might be compensated by the English for his losses (see Appendix A). In addition, a plan of the fort was prepared (Figure 2.7). It is this record of the state of the fort as it was returned by Temple to the French which provides the clearest documentary description of Fort Pentagoet. Within the fort's stone curtain there were five structures: a Barracks complex, a storehouse, a guardhouse, a dwelling, and a chapel with a bell tower which spanned the gap between the latter two buildings, extending over the entrance to the fort. All of the buildings were built of roughly dressed stone except for the chapel which was timber-framed, and mud-walled. The buildings were also shingle roofed, although an open area within the barracks complex was left unroofed. Beyond the inner compound were the fort's principal defenses: earthworks, eighteen cannon stationed in four bastions and a seaward gun platform, and a surrounding wooden palisade.

In addition to Pentagoet, the establishments at Jemseg and Port Royal were to be returned officially to the French. Rather than leave his principal headquarters at Pentagoet, Grandfontaine sent his lieutenant, Pierre de Joibert Soulanges Marson, with Walker to accept the surrender. This they accomplished within the next few weeks. Fort Jemseg, located twenty five leagues—about 97 kilometers or 61 miles—up the St. John River, was not of French construction, having been built by Temple in 1658. The "fort" consisted of two wooden structures: a combination guardhouse and magazine and a barracks. The meager defensive works were composed of a rectangular palisade with four cannon platforms, one at each corner. Armament was minimal, consisting of five cannons of small caliber. Jemseg was little more than an armed trading post which protected Temple's access to the fur trade and coal of the St. John. At Port Royal there was little left of the fort to record, for Temple had ordered its demolition c. 1658 to prevent the large French population there from overpowering the nominal English garrison. The inhabitants were assembled, and readily swore allegiance to France.[119]

With no fortifications at Port Royal and minimal defensive works at Jemseg, Pentagoet was the only substantial military installation remaining in Acadia.[120] When first constructed c. 1635 the fort's defensive works were more than adequate, and it was one of the most impressive fortifications in the northeast. By the standards of 1670, however, it was small and strategically obsolete, especially as it was commanded by higher ground. Although "there was a place in the vicinity much better adapted to receive a more regular fortification and of better security," Grandfontaine was ordered to pay "first and chief attention" to the repair of the fort and the establishment of the soldiers.[121] The fort was never replaced, and although it underwent several changes under its new administration, it retained the basic configuration described in 1670.

Pentagoet III 1670–1674: "The Enemies Principal Garrison"

The return of Acadia coincided with a period of French colonial expansion. Jean Baptiste Colbert, the mercantilist minister of Louis XIV, recognized that France had become too dependent on other nations, particularly the United Provinces, for manufactures. French industry, unable to compete with cheaper Dutch imports, had been all but ruined. Just as England expected of her colonies, the French hoped that their settlements overseas would provide raw materials in exchange for manufactured goods. Colbert saw in the colonies a protected marketplace which, if properly developed, could revitalize France's economy.[122]

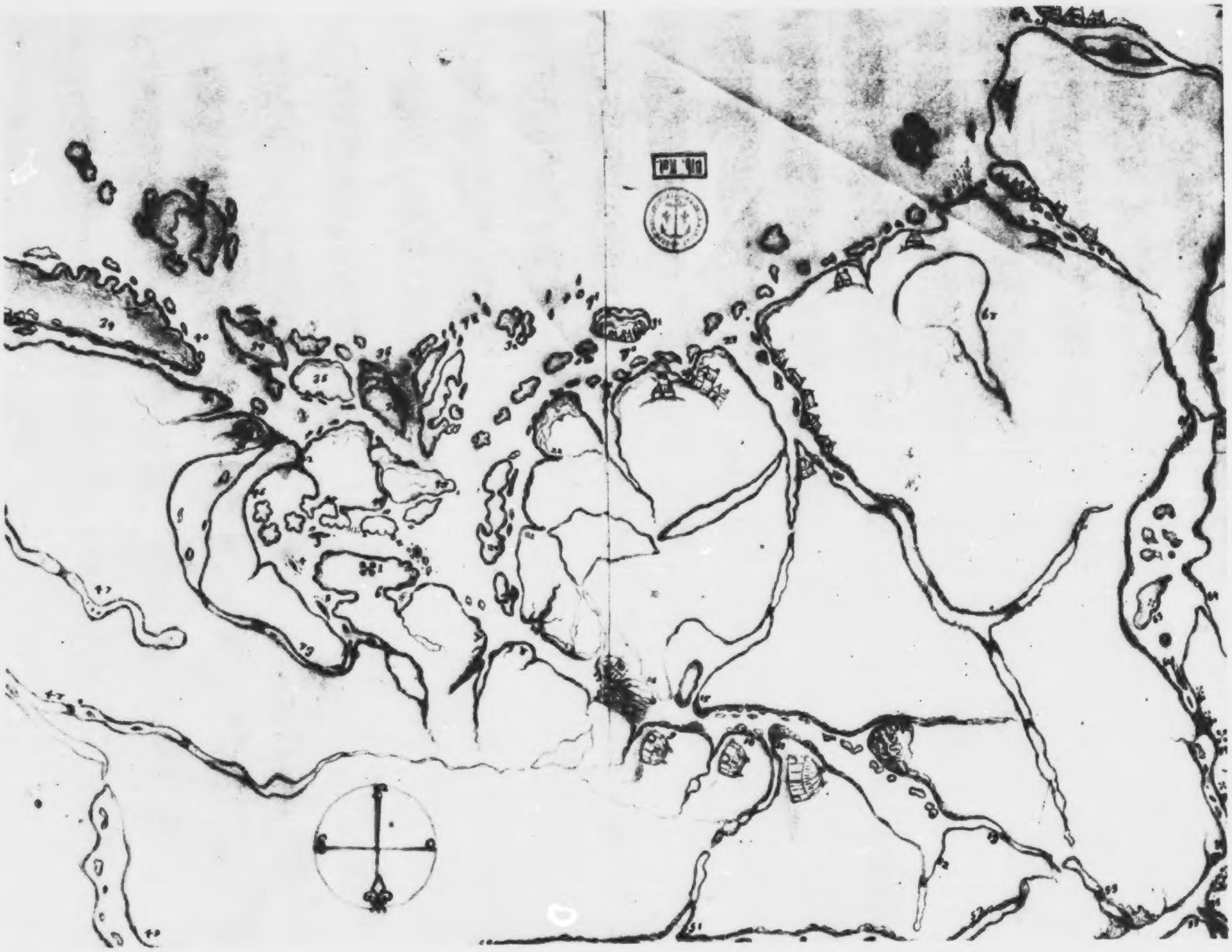
In theory, each of the colonies was to become a "Little France reserved for Frenchmen, living under French laws, reserving its products for the homeland and accepting only French manufactures."[123] Yet to facilitate the development of Acadia, Grandfontaine was given official sanction to trade with Boston. While this strategy was at odds with his mercantilist doctrine, even Colbert acknowledged that goods for Acadia might be procured more readily in Boston and at significant savings to the treasury.

Louis' minister clearly explained his priorities in Grandfontaine's orders. As soon as the new governor was settled, he was to attend to Pentagoet's defenses, reporting whatever additional assistance he needed to put the fort in a proper state of readiness. In effect, Colbert also asked for a census of Acadia, requiring Grandfontaine to report the condition of all fortifications and buildings, and the nature, number, and modes of subsistence of all inhabitants. Further, he instructed the new governor to encourage the growth of all traffic along the coast of Acadia, whether associated with the fur trade, the fisheries, or agriculture. But most important was the opening of communications with the colonies on the St. Lawrence, on which the long-term maintenance of Acadia depended. He wanted Grandfontaine to determine without delay the best communication link to Chaudiere Falls and thence to Québec—whether via the St. John River or the Pentagoet (Penobscot) River.[124]

Grandfontaine's 1671 report to the king, which has been partially reassembled from scattered fragments, abstracts, and indirect references, provides one of the clearest images of southwestern Acadia in the 17th century. The required census of Acadia was apparently prepared by a certain Sieur Randin, who was sent from France expressly for this purpose. At Port Royal, he noted 68 families with 227 children; at Pobokom (Pubnico), 3 families and 8 children; at Cape Neigre, 1 family and 2 children; at Pentagoet, 1 family (Marson) and 25 soldiers; at Mouskadabouet, 13 persons; and at Saint Pierre, 1 family and 5 children—a total of 389 individuals. Apparently the population of Port Royal had been augmented that year with the arrival of *L'Oranger* carrying "sixty passengers, and... four girls and a woman." Agricultural data were also included, yet no domestic animals or cultivated acreage were listed for Pentagoet.[125]

Grandfontaine revealed his knowledge of southwestern Acadia in a map (Figure 2.8) accompanied by an extensive legend (see Appendix B). Even though he had only been stationed at Pentagoet for a year, it is apparent that he had explored the region extensively, and had become quite familiar with his new surroundings. Naturally Penobscot Bay was described in the greatest detail, while the surrounding areas, drawn far out of proportion, received less attention.[126]

In the vicinity of the fort, Grandfontaine was principally concerned with the interests of future colonists. He identified numerous sites for future plantations, noting in particular



the presence of arable meadows and available food resources—particularly fish and shellfish. He also indicated many stands of oak and fir needed for general construction and shipbuilding. Further, three places with falls or tidal power were identified as potential sites for saw and grist mills (17, 18, 44). Access routes were of prime importance, and in spite of the complexity of the coastline, Grandfontaine managed to produce a creditable sketch of the islands and harbors of Penobscot Bay, noting the principal channels, navigation hazards, anchorages, and portages about Pentagoet. To protect future settlements, he proposed three locations for future fortification—at the mouths of the Bagaduce (2), Penobscot (8), and St. George (24) Rivers.[127]

The map legend also discusses the boundary of the colony with New England and the control of the fisheries. While Grandfontaine identified the English fishery at Monhegan Island (31) as properly belonging to the French king, he relied nonetheless on nearby Metinic Island (32) to supply codfish for the Pentagoet garrison. Yet the French did control considerable territory west of Fort Pentagoet, including the St. George River and extending far down the coast to an English house at New Harbor (25). Pemaquid (26), the nearest major English settlement on the frontier, consisted of only ten or twelve scattered houses and posed little threat to Acadian security.

In charting the Penobscot River, Grandfontaine, identified the Indian villages which probably represented his principal contacts in the fur trade. He indicated three "forts des sauvages:" the great Indian settlement of "Madahamcouit" located about half way to Québec (11), "Saquaische" in Milford (10), and one unnamed village just above the rapids at Eddington (9). Just below these rapids, in Veazie, was the

Figure 2.8 (*opposite*) Grandfontaine's 1671 map of the Penobscot drainage with an abbreviated key. Note that north is oriented downwards. A complete transcription of Grandfontaine's key appears in Appendix B.

1 The Fort [Pentagoet] commanded by higher ground.
2 Island [Nautilus] proposed for three cannon battery.
3 Strand [The Middle Ground] exposed at half tide.
4 Strand [Trott's Ledge] exposed at dead low tide.
5 Strand at the entrance of the little river [Bagaduce].
6 Habitable meadow between two coves [Wadsworth and Hatch Coves], with plenty of oaks.
7 Habitable flats [Orland River]; many oaks, major fishery for bass, alewives, sardines, and herring; anchorages.
8 Oak Point [Bucksport], defensible land suitable for a fort to control river traffic. Habitable meadow with plenty of oaks and beech trees and shelter for boats.
9 Indian fort [Eddington] at the head of the great rapids [Veazie Rapids] habitable land, various woods.
10 Saquaische [Sunkhaze, Milford], an Indian fort, with excellent habitable land and fine woods.
11 Madahamcouit [Mattawamkeag], a major Indian fort about half way to Quebec. Good land, best oak supply, and great fishing, especially for eels.
12 Stream [Seboeis?] linking to the St. John via a portage.
13 River [Penobscot West Branch] which begins above Chaudiere Falls, and is the direct route to Quebec.
14 Large remote mountain [White Cap?] where Indians claim there is silver. I enclose a sample crystal.
15 Entrance [Pushaw Stream] of a lake [Pushaw Lake] which leads to the Kennebec River. Woods are exclusively oak; the flat lands are good, but subject to flooding.
16 Habitable point [Eddington Bend] above the rapid.
17 Former English post Quebiscuit [Kenduskeag, Bangor] which I run. Fine land nearly all in oak; good salmon, eels, and sardine fishing; falls for sawmills.
18 Large cove [Marsh Bay] with habitable meadow; room [Frankfort] for board mills, fir for boards and masts.
19 Hazel Nut [Sears] Island , nearly cleared, habitable.
20 Isle Dieu [Islesboro], with plenty of good land, and shellfish to help the settlers subsist.
21 Passage [Passagassawakeag River, Belfast] or portage to the Kennebec through very good land.
22 Large cove [Rockland?] with shipbuilding materials.
23 Goat Cape [Owl's Head].
24 Entrance to the St. George River at the edge of French territory, where a cod fishery should be set up and a fort built to protect against the English.
25 John Brown's house [New Harbor], the boundary with New England.
26 Pamcuit [Pemaquid]: post and 12–15 isolated houses.
27 Entrance of the Kennebec River along which 25 or 30 houses are widely spread. The settlers do a great business in planks and cod and lots of trout.
28 Pescadona [Piscataqua] River where settlers do the same business as in the Kennebec.
29 Comitou [Merrimack/Contoocook?] River, at which mouth is a large settlement engaged only in farming.
30 Isles of Shoals, principal fishery of all New England.
31 Monhegan Island— site of a smaller but major English cod fishery— alleged to belong to France.
32 Metinic Island, where the codfishing is done for Pentagoet's provisions.
33 Isle of Foxes [North Haven and Vinalhaven], with good fishing sites and a very good harbor.
34 Isle au Haut.
35 Island [Little Deer Isle] and [Indian] fort of Larchimagam [Eggemoggin, Byard Point?]; plenty of oak trees and meadows which do not flood.
36 Safest channel [Isle au Haut Bay] to Isle au Haut, and Seal Islands, a fishery site if not ruined by Indians.
37 Foundry Islands [North and South Deer Isle].
38 The Pleasure Isles [Swans Island] having good anchorages and place for a major cod fishery.
39 Mount Desert Island.
40 Channel [Eggemoggin Reach] to the Pentagoet River.
41 Habitable stream [Benjamin] with plenty of meadow.
42 Passage [Orcuff Harbor] leading to the portage [across Cape Rosier]; very good land.
43 Mad Cape [Cap enragé = Cape Rosier].
44 Falls [Goose Falls] where one could build two or three tidal mills which could grind winter and summer.
45 Small, safe harbor [White's Head Cove] for mooring and wintering all kinds of boats.
46 Habitable flats [Wasson Cove?]; plenty of meadow.
47 Houèstotagois [Westotagwak or Union] River; fine land, oak woods, and plenty of fish and shellfish.
48 Damate [Damack or Machias] River; fine land at the mouth, and various woods for all purposes.
49 Lake [Chiputneticook] which links to the Ste. Croix and Etchemin [Monument] Rivers; fine land and oaks.
50 St. John River.
51 Stream linking to the Pentagoet via a portage.
52 Headwaters of the St. John, Pentagoet, and Kennebec Rivers at the lake of Chaudiere Falls.
53 Chaudiere Falls.
54 Quebec.
55 The Cap [de la Madeleine] settlement.
56 The Settlement of Three Rivers.
57 Richelieu fort and settlement; St. Peter lake and isles.
58 The fort and islands of the assumption.
59 The fort and Lake St. Louis.
60 Fort Ste. Thérèse [near Montreal].
61 Fort St. Jean.
62 Entrance to Lake Champlain.
63 Fort Ste. Anne.
64 River which leads to Montreal [Rivière des Prairies].
66 Rapids between Lakes Champlain and St. Sacrement.
67 Lake of St. Sacrement [St. Francis] which goes sixty leagues towards the Iroquois.
68 Large lake in the lands [Sebago Lake].
69 River full of rapids which enters into the Piscataqua.
70 Channel to the Pentagoet River from the southwest.
71 Channel safe only for canoes because of strand.
72 Shallow channel which is only safe for small boats.
73 Point [Johnson's Point?] on the small river [Bagaduce] with plenty of firs for masts, good land for settling, plenty of eels, and all sorts of fish.

truck house "Quebiscuit" (17), which was apparently the old post of Negew "which the English started, which I have put a stop to and where I always have some men to prevent the English from coming into the river."[128]

Of particular significance to Colbert, however, was the documentation of the route to Québec. While Grandfontaine obviously had limited cartographic ability and was unable to scale his map properly within the confines of his paper, he showed an exceptional knowledge of the relative positions of the principal portages and tributaries within the complex drainage pattern of interior Maine. To be sure this is a highly schematic and distorted rendering, constructed partially from second-hand data gathered from Indian informants. Nevertheless the map gives a surprisingly accurate representation of the most direct route to Québec via the Penobscot, and the interior connections with the Chaudiere, St. John, Ste. Croix and Kennebec rivers. Ironically, it is a testimony both to the governor's geographic awareness and his ineptness at cartography.

Grandfontaine's report concluded that the transition of power had been smooth. His twenty-two men—fourteen soldiers and eight *engagés*—apparently had already begun farming about a league from the fort and were willing to settle there permanently "if some girls come to them from France," and if they could procure supplies of French grains to plant rather than Indian corn. Further, the area showed great potential for shipbuilding and copper mining, activities central to Colbert's plans to rebuild France's economy by increasing both the merchant marine and the supply of specie in circulation.[129]

Yet the successful resettlement of Pentagoet was soon marred by a dispute between Grandfontaine and Marson. Late in 1671 Jean Talon, the Intendant of Canada, wrote to the King that the governor and his lieutenant were at each other's throats, and were unable to settle their differences. Although he did not elaborate on the nature of the dispute, Talon suggested that Marson take command of Jemseg in order to present to the English the appearance of a united front at Pentagoet. This reorganization left Grandfontaine's ensign, nineteen-year-old Jean Vincent d'Abbadie de Saint-Castin, as second-in-command—thus beginning the career of a figure who was to become "legendary" as an Acadian leader.[130] Troubles continued, however, as starvation set in that winter and several of the company were sent to Port Royal until additional provisions could be procured from Québec.[131]

Pentagoet's greatest weakness, however, was that it was grossly underpopulated. Talon, observed in 1673 that :

> The post of Pentagoet, located at the head of all Acadia near Boston, it seems, should be fortified principally by the dispatching of such men and girls as his majesty would wish to have sent there, so that by the marriages this part of the colony would receive the growth which is necessary for it to sustain itself against its neighbors [the English].[132]

Prior to Grandfontaine's arrival, French colonists had only trickled into Acadia since the 1640s. While Acadia was in English control, New France was the focus of attention, and settlers, supplies, and monetary assistance poured into the St. Lawrence valley. The commitment to New France continued, yet French colonization schemes for Acadia failed to materialize; Louis XIV and Colbert appeared content to retain title to Acadia, but showed little interest in developing the colony.

Accordingly, Grandfontaine focused his interests on commerce rather than colonization, and sought to supplement his salary of 2400 livres per annum through trade with the Indians, the English, and his own settlers.[133] He developed close contacts with the English, especially Thomas Gardiner, truckmaster at Pemaquid and former commander of "Penobscot fort" under Temple, and with Silvanus Davis, another well known trader on the Kennebec.[134] He also established commercial relations with Boston, and allowed the English to fish in Acadian waters under much the same terms as Temple had before him.[135]

In May 1673, at the end of his term of office, Grandfontaine was recalled to France.[136] His principal task, that of reasserting French control over the colony, had been accomplished and he had successfully thwarted attempts by both the Le Borgnes to seize power. As might be expected, however, he had often used his position to further his own endeavors, leading to suggestions that "it is necessary to do things differently and not to have as governor one who is engaged in trading."[137] His replacement, Jacques de Chambly, a veteran officer in the Carignan-Salières regiment, had remained in New France to command colonial militia when his company was disbanded. Chambly was quite familiar with the frontier military establishments on the Richelieu River, and had been in charge of the construction of Fort St. Louis, later called Fort Chambly. Late in the fall of 1673, Chambly left Québec for Pentagoet and assumed the command of Acadia.[138]

Sent with Chambly to Pentagoet was Father Pierron, a Jesuit priest from Québec, for according to Count Frontenac, the new Governor of New France, Acadia had been without pastoral guidance since its return to French control in 1670. The Bishop of Québec specifically requested that a priest be sent to the colony to assess Acadia's religious needs and then to return to Québec in the spring to present his report. After travelling along the Acadian coast ministering to the settlers, and making a brief sojourn to Maryland, Father Pierron was ordered back to Québec, leaving Acadia again without pastoral guidance.[139]

Upon arrival at Pentagoet, Chambly quickly wrote to inform Frontenac about the condition of the fort and to complain of Grandfontaine's conduct towards the "habitans" and soldiers. Apparently Grandfontaine forcefully seized some "certificats" and his behavior in general appeared to Chambly to have been most irregular for a military officer.[140] His principal dissatisfaction, however, was that the lands in the vicinity of Pentagoet were not suitable for habitation. But because Pentagoet was the outpost closest to the English, both Frontenac and Chambly agreed that it was important to maintain it.[141]

The downfall of Pentagoet was ultimately the result of a European power struggle. Beginning in the late 1660s, both France and England became involved in a series of wars with the Dutch. In 1670 Charles II of England and Louis XIV signed the secret Treaty of Dover which pledged English assistance to Louis XIV in his campaigns against the Netherlands. It was not until 1672, however, that war was officially declared in Europe, and the following year the conflict spread to colonies overseas. In 1674 Captain Jurrien Aernouts, commander of the Dutch corsair *Flying Horse* of Curacao, received a commission to sail against the English who held New York, the former Dutch colony of New Orange. Upon arrival in New York, he was informed that a peace, the Treaty of Westminster, had been concluded between the English and the Dutch, but that no treaty had been made with the French. While refitting in New York, Aernouts became acquainted with John Rhoades, a coastal trader from Boston, who encouraged him to sail against the minimally defended French colony of Acadia.

In July the *Flying Horse*, piloted by Rhoades, with crew of fifty men and eight cannon, set sail from New York for Pentagoet.[142] On the first of August they "Landed at Penobscott the Enemies Principal Garrison," and besieged the fort.[143] Although Chambly "assuredly conducted himself very well on the occassion," he had apparently made one tragic mistake. Upon the advice of Father Pierron, he had for some unkown reason placed some of his cannon outside the fort, leaving it inadequately defended.[144] During the short skirmish Chambly was severely wounded. Without their commander, his company of 23 poorly armed and "disaffected" soldiers and habitants surrendered and agreed to swear allegiance to the Prince of Orange.[145] Saint-Castin, however, was tortured—burned between his fingers with a slow match—in order to persuade him to join the Dutch cause. Eventually, however, he was taken prisoner together with the wounded Chambly.[146] Aernouts, realizing that he did not have "sofitient strenth to Leave to Garrison the place," took everything of value, and proceeded to demolish the settlement. The buildings within the compound and "sume of the houses of the ffrench" were burned, and then Pentagoet's guns were turned on its own stone walls and the fort was "levell'd wth ye ground."[147] Following the destruction of Pentagoet, Aernouts sacked the posts at Machias, St. John, and Jemseg, carrying away "the Plundor and Principle Persons Prisono^{n}," including Marson, to Boston. There Pentagoet's cannons were sold to Massachusetts for the defense of the colony.[148] Aernouts demanded 1000 pounds in beaver of Governor Frontenac in Québec for the ransom of Marson and Chambly, and Saint-Castin was sent to Québec to collect the money from Governor Frontenac. Frontenac paid the ransom for his friend out of his own pocket, but as the request arrived in the fall, the transaction was not made until the following spring.[149]

Thus Aernouts' party claimed western Acadia from the St. John River to the Penobscot in the name of the Prince of Orange, renaming it New Holland. At first, upon hearing of the conquest, the English were "extremely overjoyed at what had happened" to their French neighbors.[150] For the next year, however, Acadia became a haven for a cadre of ten Dutch and English pirates—participants in the Aernouts expedition. These men preyed on all shipping along the coast, taking prisoners, demanding ransoms, and claiming falsely that they were acting on the authority of the Prince of Orange to protect his new holdings.[151] Aided by a French trader, Henri Brunet, Saint-Castin set out in pursuit of these buccaneers.[152] It was the English of Boston, however, who finally attacked them as they were camped at Pentagoet. They were captured, brought to Boston, tried, and variously pardoned or banished.[153] Meanwhile, the inhabitants of Pemaquid scavenged through the remains of the fort, taking with them whatever planks and ironwork they could salvage.[154] In spite of all this disruption, there remained some 15 or so Frenchmen at Pentagoet in 1676, awaiting news from France, and in desperate need of provisions.[155]

With the destruction of Pentagoet, France's barrier to English expansion was gone. But an Etchemin uprising in Maine in 1676, popularly confused with King Philip's War, squelched any English hope of occupying the territory in the immediate future. Indeed they were forced to abandon most of their own settlements along the coast of Maine for nearly 75 years, throughout a series of French and Indian wars.

The French did not share the same bad relationship with the Indians, and forged an even stronger ties with them. An experienced trader even before the fall of Pentagoet, young Saint-Castin reestablished French control of southwestern Acadia in 1677 or shortly thereafter.[156] His was a new kind of colonization strategy—a trading post within a village of 160 Etchemin Indians. This new settlement, located about a mile and a half up the Bagaduce River from Fort Pentagoet, consisted of two simple European structures within a settlement of 32 wigwams.[157] Saint-Castin's Habitation represented a new era of French relations with the Etchemins and marked a dramatic departure from the original Fort Pentagoet—an exclusively European enclosure. The ruins of the old fort now served as little more than a convenient landmark, and an occasional site for a rendezvous (Plate 1).[158]

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Notes to Chapter 2: Pentagoet and The Development of Early Acadia

1 Here the term "Etchemin" is used to refer to the local Indians, the eastern branch of the Abenakis. For a thorough discussion of the term and its implications, see. Bruce J. Bourque, "Ethnicity on the Maritime Peninsula, 1600–1725" ms. on file, Maine State Museum, Augusta.

2 The site of Champlain's Habitation in Québec was excavated in conjunction with an urban rehabilitation project, and a major site report has recently been published: Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec: étude de la collection archéologique (1976–1980)*, Dossiers 58, Les Publications du Québec, (Québec, 1985). Fort Sainte-Marie-de-Grâce (1632–1652) at La Hève, Nova Scotia, was partially excavated by David Christianson in 1977, and the analysis of that site is still in preparation. Fort La Tour (1631–1645), located at the mouth of the St. John River in St. John, New Brunswick, was excavated by J. Russell Harper (1955, 1956) and Norman F. Barka (1963): "Historic Sites Archaeology at Portland Point, New Brunswick, Canada 1631–c.1850 A.D.," (Ph.D. thesis, Harvard University, 1965). Under the direction of Birgitta Wallace of Parks Canada, test excavations began in 1985 at "Fort St. Peter's" (c. 1650–1669) also known as "Fort St. Pierre" and "The Nicolas Denys Trading Post," near Canso, Nova Scotia. Research at the 17th-century fortified village of Pemaquid have been partially reported by Helen B Camp: "Archaeological Excavations at Pemaquid, Maine, 1965–1974," Maine State Museum, (Augusta, 1975). A complete report by Camp and Robert L. Bradley is scheduled for publication in this series soon. Excavations have also been conducted at a trading post on the Kennebec River from 1970 to 1973 under the direction of history professor James Leamon of Bates College. Emerson W. Baker reports the results in *The Clarke & Lake Company: The Historical Archaeology of a Seventeenth-Century Maine Settlement*, Occasional Publications in Maine Archaeology, no. 4, Maine Historic Preservation Commission, (Augusta, 1985).

3 David Sanger, "Changing Views of Aboriginal Seasonality and Settlement in the Gulf of Maine," *Canadian Journal of Anthropology*, vol. 2, no. 2, (1982), pp. 195–203. Unfortunately it is usually very difficult to distinguish a camp which has been occupied all year from one which has been occupied serially at different times of the year when the stratigraphic separation between occupations is poor—a common characteristic of coastal sites in Maine.

4 Kenneth Morrison, "The People of the Dawn: The Abenaki and Their Relations with New England and New France 1600–1727," Ph.D. dissertation, (University of Maine at Orono, 1975), pp. 25–26. Pierre Biard, "Relation de la Nouvelle France, de ses terres, Natural du Pais et de ses Habitans (1616)," in Reuben Gold Thwaites ed., *The Jesuit Relations and Allied Documents*, vol. 3, Pageant Book Co., (New York, 1959), p. 69.

5 There is some indication in the northeast of a pre-contact fur trade, involving the now extinct sea mink. Arthur E. Spiess, Bruce J. Bourque, and Steven L. Cox, "Cultural Complexity in Maritime Cultures: Evidence from Penobscot Bay, Maine," in Ronald J. Nash, ed., *The Evolution of Maritime Cultures one the Northeast and Northwest Coasts of America*, Simon Fraser, (Vancouver, 1983), p. 98–101.

6 The aboriginal components of the site were sampled principally in the test trenches N58 E91–116, N58–60 E106 and N61 E87–91. In nearly all other areas, excavation ceased upon reaching the interface between the living surfaces of Fort Pentagoet (1635–1674) and the redeposited aboriginal shell middens.

7 Dr. David Sanger, personal communication, (October 12, 1983). Alaric Faulkner, "Excavation of Pentagoet, a 17th Century Acadian site in Maine, Interim Report to the National Endowment for the Humanities," (May , 1983), Appendix G. James Petersen, personal communication, (October 14, 1983).

8 Feature 16, BETA-6606, Beta Analytic, Inc.

9 Fannie Hardy Eckstorm, *Indian Place Names of the Penobscot Valley and the Maine Coast*, University of Maine at Orono Press, (Orono, 1978), p. 15. W. L. Grant, ed., *Voyages of Samuel de Champlain 1604–1618*, Charles Scribner's Sons, (New York, 1907), pp. 44–52. Gerald E. Morris, *The Maine Bicentennial Atlas*, Maine Historical Society, (Portland, 1976), Plates 2 and 3. Clarence J. d'Entremont, *Histoire du Cap-Sable de l'An Mil au Traité de Paris (1763)*, Hebert Productions, (Eunice, Louisiana, 1981), vol. 1, pp. 96, 108, 109.

10 Samuel Purchas, *Purchas His Pilgrimmage or Relations of the World*, William Stansby, (London, 1617), pp. 939–940.

11 William. F. Ganong, editor and translator, *The Description and Natural History of the Coasts of North America by Nicolas Denys* [1672], The Champlain Society, (Toronto, 1908), pp. 97, 465. Clarence J. d'Entremont, *Histoire du Cap-Sable*, vol. 2, pp. 274–283, 437.

12 George MacBeath, "Claude Saint-Etienne de La Tour," in *Dictionary of Canadian Biography*, vol. 1, University of Toronto Press, (Toronto, 1966), 596–597. Thwaites, vol. 7, 1959, p. 13.

13 George Parker Winship, *Sailors Narratives of Voyages Along the New England Coast 1524–1624*, Houghton, Mifflin & Co., (Boston, 1905), pp. 181–182. There is some question at this point whether these were local Indians or Micmac traders from the maritimes who adopted European-style shallops shortly after contact. Bruce Bourque, pers. comm., October, 1986.

14 "Biard's Relation, 1616," Thwaites, vol. 3, 1959, pp. 261–283; vol. 4, 1959, pp. 9–48. "Lettre du Duc de Montmorency au Roi, Octobre 28, 1613," in Robert Le Blant and Rene Baudry, eds., *Nouveaux Documents sur Champlain et son Epoque*, Public Archives of Canada, (Ottawa, 1967), vol. 1, no. 143, p. 305. The Saint-Sauveur settlement on Mount Desert was occasionally referred to as "Pentagoa," and hence has been confused with the later French Fort Pentagoet in Castine, Maine. For the French, Pentagoet was the name of the river and its drainage; thus any settlement near the mouth of the river was commonly referred to as Pentagoet.

15 John Smith, *The Generall History of Virginia, New England, and the Summer Isles (1624)*, facsimile of the first edition, Amilcare Pizzi S.P.A. (Milan, n.d.), pp. 208–209. Smith does note, however, that the French monopolized the trade to the eastward, beyond the Kennebec.

16 Percival Hall Lombard, "The First Trading Post of the Plymouth Colony," *Old Time New England*, (October, 1927), pp. 71–72. John G. Reid, *Acadia, Maine and New Scotland*, University of Toronto Press, (Toronto, 1981),

p. 84.

17 Traditionally historians have identified this first trading post on the Kennebec as "Cushnoc," near Present day Augusta. Emerson Baker questions this interpretation, noting that the name "Cushnoc" is not used by Bradford, and does not appear in the literature until 1650. Baker argues that this site was located downstream from the falls at Augusta. *The Clarke and Lake Company: The Historical Archaeology of a Seventeenth-Century Maine Settlement*, Occasional Publications in Maine Archaeology, no. 4, Maine Historic Preservation Commission, (Augusta, 1985), pp. 3-4. However, current excavations in Augusta (1985–1986), under the direction of Professor Leamon of Bates, may indeed have located the first Plymouth trading post.

18 William Bradford, *Of Plymouth Plantation 1620–1647*, Alfred A. Knopf, (New York, 1952), pp. 219–220.

19 John E. Godfrey, "Pilgrims of the Penobscot," *Collections of the Maine Historical Society*, vol. 7, E. Upton and Son, (Bath, 1876), pp. 30–31.

20 William Bradford, *Of Plymouth Plantation*, p. 219. *MassHS*, Massachusetts Historical Society, (Boston, 1912), vol. 45, pp. 493–498.

21 William Bradford, *Of Plymouth Plantation*, pp. 245–246.

22 George MacBeath, "Isaac de Razilly," *DCB*, vol. 1, p. 567.

23 John G. Reid, *Acadia, Maine and New Scotland*, p. 26.

24 "Extracts from the Charter of Nova Scotia to Sir William Alexander... September 10/20, 1621," in Mary Frances Farnham, *Documentary History of the State of Maine*, James Phinney Baxter, ed., Maine Historical Society, The Thurston Print, (Portland, Maine, 1901), vol. 7, pp. 57–60.

25 John G. Reid, *Acadia, Maine and New Scotland*, p. 26.

26 George MacBeath, "Claude Saint-Etienne de La Tour," *DCB*, vol. 1, pp. 596–597.

27 While Claude was a supporter of Alexander, his son Charles was not, and vigorously repudiated his father's attempt to align with the King of England. To learn more of Claude's motives, see Wm. F. Ganong, editor and translator, *The Description and Natural History of the Coasts of North America by Nicolas Denys*, pp. 131–137.

28 John G. Reid, "The Scots Crown and the Restitution of Port Royal, 1629–1632," *Acadiensis*, (1977), pp. 39–63. Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolas Denys*, pp. 132–137.

29 George MacBeath, "Isaac de Razilly," *DCB*, vol. 1, pp. 568–569. Clarence J. d'Entremont, *Histoire du Cap-Sable*, vol. 2, pp. 410, 469–470.

30 William Bradford, *Of Plymouth Plantation*, pp. 275–276.

31 "Pljmoth to be ayded, September 3, 1635," *Records of the Governor and Company of the Massachusetts Bay in New England*, vol. 1, William White, (Boston, 1853), p. 160.

32 William Bradford, *Of Plymouth Plantation*, pp. 276–277.

33 The Razilly-Cordonnier Company was a private association which was granted trading privileges by the Compagnie de la Nouvelle France in return for cash outlays to support colonization. Claude de Launay-Razilly remained in France overseeing the business affairs of the company. Upon the death of his brother, he appointed d'Aulnay as his agent in Acadia. George MacBeath, "Isaac de Razilly," *DCB*, vol. 1, p. 568. Clarence J. d'Entremont, *Histoire du Cap-Sable*, vol. 2, p. 522.

34 Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolas Denys*, p. 151.

35 Individuals involved in both the North American fisheries and the fur trade sought to limit settlement to protect valuable and limited resources. Farmers cleared fields, cutting down timber needed for the fisheries and disturbed the natural habitat of fur bearing animals, driving them further inland.

36 John G. Reid, *Acadia, Maine and New Scotland*, p. 115–116.

37 Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolas Denys*, p. 5.

38 James Kendall Hosmer, ed., *Winthrop's Journal*, vol. 1, Charles Scribner's Sons, (New York, 1908), p. 159.

39 Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolas Denys*, p. 152. M. A. MacDonald, *Fortune and La Tour*, Methuen, (Toronto, 1983), p. 67.

40 Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolas Denys*, pp. 5,151.

41 "Louis XIII to d'Aulnay, February 13, 1641," *Collection des Manuscrits contenant lettres, memoires, et autres documents historiques relatifs à la Nouvelle-France recueillés aus Archives de la Province de Québec ou copiés à l'étranger*, vol. 1, A. Coté and Co., (Québec, 1883–1885), p. 115. Various authors suggest that the court's knowledge of Acadia was extremely limited in the 17th century. Yet, it would appear that their decision was not all that absurd, as La Tour was essentially granted Nova Scotia which included Port Royal and Cape Sable, territory that he and his father had "possessed" since 1613. While d'Aulnay, a relative newcomer to Acadia, received that which had been reclaimed by France, i.e. Pentagoet and modern-day New Brunswick.

42 M. A. MacDonald, *Fortune and La Tour*, Methuen, (Toronto, 1983), pp. 77–78.

43 Ibid., pp. 84–87.

44 George Brown Tindale, *America: a Narrative History*, vol. 1, Norton & Co., (New York, 1984), pp. 63–64.

45 James Kendall Hosmer, *Winthrop's Journal*, vol. 2, p. 43.

46 Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolas Denys*, p. 151. James Kendall Hosmer, *Winthrop's Journal*, vol. 2, p. 43.

47 James Kendall Hosmer, *Winthrop's Journal*, vol. 2, p. 88. M. A. MacDonald, *Fortune and La Tour*, pp. 92–93.

48 René Baudry, "Charles de Menou d'Aulnay," *DCB*, vol. 1, p. 504.

49 Gabriel Debien, "Engages pour le Canada au XVIIe Siecle vus de La Rochelle," *Revue d'Histoire de l'Amérique Française*, (September, 1952), pp. 226–227.

50 James Kendall Hosmer, *Winthrop's Journal*, vol. 2, p. 88. M. A. MacDonald, *Fortune and La Tour*, p. 182.

51 William Hubbard, "A General History of New England," *Collections of the Massachusetts Historical Society*, vol. 6, second series, Massachusetts Historical Society, (Boston, 1815), pp. 482–483. John G. Reid, *Acadia, Maine and New Scotland*, p. 96–97. By 1643 the English Civil War had begun to disrupt normal colonial commerce. Perhaps Massachusetts saw markets for New England's agricultural products in Acadia, thus solving their impending economic dilemma.

52 James Kendall Hosmer, *Winthrop's Journal*, vol. 2, p.

180. D'Aulnay's "farm" was apparently located on the west bank of the St. George River in present-day South Thomaston, Maine. The location of this site is depicted on the "Carte de la Riviere St George et Environs," 2960 Port. 135, div. 3, p. 8, Bibliothèque Nationale, Paris, France.

53 M. A. MacDonald, *Fortune and La Tour*, pp. 151–171. It was this episode which laid Fort La Tour to rest until it was exposed in the excavations of J. Russell Harper in 1955 and 1956 and Norman F. Barka (1963): "Historic Sites Archaeology at Portland Point, New Brunswick, Canada 1631–c.1850 A.D.," (Ph.D. thesis, Harvard University, 1965).

54 M. A. MacDonald, *Fortune and La Tour*, pp. 173, 177.

55 "Account of M. De La Tour, May 13, 1654," *MassHS*, vol. 7, third series, Charles C. Little and James Brown, (Boston, 1838), p. 118.

56 "Thomas Gorges to Governor Winthrop," *The Hutchinson Papers*, vol. 1, Joel Munsell, (Albany, 1865), p. 128.

57 René Baudry, "Charles de Menou d'Aulnay," *DCB*, vol. 1, p. 505.

58 William Bradford, *Of Plymouth Plantation*, p. 279.

59 Andrew Hill Clark, *Acadia*, University of Wisconsin Press, (Madison, 1968), pp. 94–95.

60 This site of Fort Sainte-Marie-de-Grâce, was tested in 1977 by David Christianson. A manuscript dealing with the ceramics recovered in this excavation has been prepared by Marc Lavoie in January of 1981. To date, no report has been published.

61 Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolas Denys*, p. 482. MacBeath, "Isaac de Razilly," *DCB*, vol. 1, p. 568. Clarence J. d'Entremont, *Histoire du Cap-Sable*, vol. 2, pp. 623–631.

62 Gabriel Debien, "Engagés pour le Canada," p. 221.

63 Ibid., pp. 222–223. M. A. MacDonald, *Fortune and La Tour*, pp. 101–102.

64 Andrew Hill Clark, *Acadia*, p. 100. Debien, "Engagés pour le Canada," pp. 226–227, 378.

65 René Baudry, "Charles de Menou d'Aulnay," *DCB*, vol. 1, p. 505.

66 For 1635, see James Kendall Hosmer, *Winthrop's Journal*, p. 159; for 1654 see "Letter from Major Robert Sedgwick, September 24, 1654," in *The Historical Magazine*, vol. 2, third series, Henry Dawson, (Morrisania, N.Y., 1873), pp. 37–38.

67 Geneviève Massignon, "La Seigneurie de Charles de Menou d'Aulnay, Gouverneur de l'Acadie, 1635–1650," *Revue d'Histoire de l'Amerique Française*, (March, 1963), p. 471.

68 "Lettre au Conseil d'Etat, 1644, 6 Mars," *Nouvelle France, Documents Historiques*, vol. 1, Librairie J. Demers, (Québec, 1893), p. 99. The published version transcribes the name as "Dornet," rather than "Doucet," but one of his many descendents, Jeanne Thiele, has kindly set the record straight.

69 René Baudry, "Charles de Menou d'Aulnay," *DCB*, vol. 1, p. 506. The orchard was mentioned in both the 1670 descriptions of the fort and in an agreement between Sir Thomas Temple and William Crowne, *Massachusetts Archives*, vol. 2, folio 506–507, microfilm.

70 "Edward Winslow to John Winthrop, February 17, 1637," *Winthrop Papers*, vol. 3, Massachusetts Historical Society, (Boston, 1943), p. 392. M. Delafosse, "La Rochelle et le Canada au XVIIe Siecle," *Révue d'Histoire de l'Amérique Française*, (1951), p. 487. Baudry, "Charles de Menou d'Aulnay," *DCB*, p. 506. Denys in his *Coasts of North America* suggests that only about Pentagoet were the species of trees suitable for naval construction: white oak for structural members, white pine for planking, and spruce for masts. According to Denys the timber resources of Nova Scotia and Cape Breton proved inferior to those along the "Riviere de Pentagouet," Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolâs Denys*, pp. 107–108.

71 James Kendall Hosmer, *Winthrop's Journal*, vol. 2, pp. 43, 180.

72 "Commission from d'Aulnay to Mutton," *Massachusetts Archives*, vol. 2, folio 471 and 471A, microfilm.

73 Clarence J. d'Entremont, *Histoire du Cap-Sable*, vol. 3, pp. 858–861. M. A. MacDonald, *Fortune and La Tour*, p. 177.

74 Wm. F. Ganong, *Description and Natural History of the Coasts of North America by Nicolas Denys*, pp. 10, 99. Fort St. Peter's, or Fort St. Pierre c. 1650-1669 is, the site of Nicolas Deny's last trading post. In 1985 Birgitta Wallace of Parks Canada, Halifax conducted archaeological tests at this site.

75 René Baudry, "Charles de Menou d'Aulnay," *DCB*, vol. 1, p. 505. John G. Reid, *Acadia, Maine and New Scotland*, pp. 127–129. M. A. MacDonald, *Fortune and La Tour*, p. 179.

76 "Mr John Leverett to the Protector, July 4, 1654," in Thomas Birch, ed., *A Collection of the State Papers of John Thurloe*, vol. 2, (London, 1742). "Mr. John Leverett to the Protector, September 5, 1654," ibid., p. 489. "Letter from Major Robert Sedgwick, September 24, 1654," in *The Historical Magazine*, vol.2, third series, Henry Dawson, (Morrisania, N. Y., 1873), pp.37–38. There are numerous minor descrepancies in Sedgwick's letters concerning the ordnance and garrisons of the captured Acadian settlements.

77 Ignace de Paris, "Acadia," *Report of the Public Archivist of Canada*, (1904), Appendix H, p. 337.

78 "Peter Crushett vs. Robert Sedgwick, April 11, 1657," Middlesex County, Massachusetts Court Records, folio 20–2.

79 William I. Roberts III, "Robert Sedgwick," *DCB*, vol. 1, p. 605.

80 John G. Reid, *Acadia, Maine and New Scotland*, p. 136.

81 "Monsieur de la Tour oweth, May 13 1654," *MassHS*, Charles C. Little and James Brown, (Boston, 1838), p. 118.

82 "Warrant for Articles of Agreement between Oliver Cromwell, Lord Protector..., July 14, 1656," *Calendar of State Papers, Colonial Series*, vol. 1, p. 4 (microfiche).

83 "Warrant to Thomas Temple," *Suffolk Deeds*, liber III, Rockwell and Churchill, (Boston, 1885), folio 22.

84 "La Tour to William Crowne and Thomas Temple," *Suffolk Deeds*, liber III, Rockwell and Churchill, (Boston, 1885), folio 108.

85 Clarence J. d'Entremont, *Histoire du Cap-Sable*, vol. 2, pp. 726–729. M. A. MacDonald, *Fortune and La Tour*, p. 180.

86 Arthur Howard Buffington, "Sir Thomas Temple in Boston, A Case of Benevolent Assimilation," *Transactions of the Colonial Society of Massachusetts*, vol. 27, (Boston, 1932), pp. 311–312.

87 See Emerson W. Baker, *The Clarke & Lake Company*.

88 "Thomas Lake to John Leverett, September 1657," *Mas-*

sachusetts Archives, vol. 2, p. 505.

89 "Temple to Crowne, Crowne to Temple, September 1, 1657," *Suffolk Deeds*, Rockwell and Churchill, (Boston, 1885), liber III, fols. 108–112.

90 "Col. Thomas Temple to Lord Fiennes and Company, December 27, 1658," *CSP*, vol. 1, p. 58.

91 "Mr Crowne's title to Penobscot; and other lands adjacent, November 20, 1700," *DHSM*, vol. 10, pp. 74–82.

92 Ibid., p. 79. Fannie Hardy Eckstorm, *Indian Place Names of the Penobscot Valley and the Maine Coast*,, pp. 23–25.

93 Bernard Bailyn, *New England Merchants in the Seventeenth Century*, Harper and Row, (New York, 1964), p. 122.

94 "Crowne to Temple, May 4, 1660," *Massachusetts Archives*, vol. 2, 506–507. "A Memorial concerning the English title to Penobscot...," *DHSM*, vol. 9, 1907, pp. 27–29. "Mr Crowne's title to Penobscot...," ibid., pp. 79–80.

95 During the 17th century, the English often employed the Mohawks to keep the Eastern Indians in line, and in the 1660s Mohawk forays into New England, such as that against the Eastern Indians on the Penobscot became commonplace. The one hundred Eastern or "Northern" Indians encamped about Fort Pentagoet were thoroughly terrified by the peoples of the Iroquois Confederation, and a number of them were apparently taken prisoner and "given to those [Mohawks] who lost friends." "A True Relation of the Maquas Coming to Penobscott ffortt...by Thomas Gardner, commander of the same, August 5, 1662," Fannie Hardy Eckstorm Papers, Box 617, folio 74, Special Collections, Fogler Library, University of Maine.

96 "Petition of Thomas Elliott, July 17, 1660," *CSP*, vol. 1, p. 21. "Petition of Sir Lewis Kirke, John Kirke and Francis Berkeley, July 19, 1660," ibid., p. 22.

97 "Commission to Capt. Thomas Breedon, December 4, 1661," *CSP*, vol. 5, p. 189.

98 "Warrant to Col. Thomas Temple, December 9, 1662," *CSP*, vol. 5, p. 193. The armament to be confiscated also included ordnance from Port Royal which had been taken to Boston when Temple razed the fort c. 1658.

99 "The King's warrant suspending Thos. Breedon, February 1662," *CSP*, vol. 5, p. 248.

100 "Deposition of Edward Naylor, October 25, 1666," *DHSM*, vol. 6, p. 21.

101 "Warrant to the Attorney General, April 5, 1662," *CSP*, vol. 5, p. 273.

102 Clement Cormier, "Alexander le Borgne de Belle-Isle," *DCB*, pp. 435–436.

103 "Petition of Capt. Thos. Breedon, 1659," *CSP*, vol. 1, p. 66.

104 "Notes relating to America, c. 1667," *CSP*, vol. 5, p. 1660. The reference to "coals" refers to the exploitation of the great coal deposits of Cape Breton, Nova Scotia. Coal was used at Fort Pentagoet in d'Aulnay's time to fuel the forge.

105 Temple proposed that Massachusetts might banish the Quakers to his province and thus it would have been "the best expedient for freeing the Colonies from the Quakers, who would have feared that kinde of banishment more then hanging; it being a cutting them off from all opportunities & libertie of doing hurt in the Colonies, by gaining proselytes, which would have bene more bitter than death to them." In addition it would have provided Temple's barren colony with inhabitants. "John Davenport to John Winthrop, Jr., October 6, 1669," *MassHS* vol. 7, 4th series, (Boston, 1865), p. 509.

106 "Memorial of Monsieur Talon to the King, Quebec, November 10, 1670," in George A. Wheeler, *History of Castine, Penobscot and Brooksville, Maine; Including the Ancient Settlement of Pentagöet*, Burr and Robinson, (Bangor, 1875), p. 217.

107 "Proclamation of Temple, March 25, 1665," Gay Transcripts, Massachusetts Historical Society, Boston, MA, pp. 23–29.

108 "Sir Thomas Temple to Sec. Lord Arlington, March 2, 1669," *CSP*, vol. 7, pp. 24–25. Apparently some English traders found it useful to keep the Indian population in perpetual debt. As with indentured servants in Virginia and Pynchon's dependent renters in Springfield, Massachusetts, debt peonage proved to be a convenient means with which to maintain economic and social control over a possibly unruly group of individuals. See Edmund S. Morgan, "The First American Boom: Virginia 1618 to 1630," *William and Mary Quarterly*, (1971), vol. 18, pp. 169–198 and Stephen Innes, *Labor in a New Land: Economy and Society in Seventeenth-Century Springfield*, Princeton University Press, (Princeton, 1983).

109 "Sir Thomas Temple to Sec. Lord Arlington, May 24, 1667," *CSP*, vol. 5, p. 1486.

110 John G. Reid, *Acadia, Maine and New Scotland*, pp. 156–157.

111 Technically, neither Temple nor Crowne had any claim whatsoever to Pentagoet, their patents having been superseded in 1664 by that of the Duke of York, which extended from the Kennebec River to the St Croix. "Extracts from the Grant of Pemaquid to James, Duke of York, by Charles II of England, March 12/22, 1664/65," *DHSM*, vol. 7, pp. 304–305.

112 "Morillon du Bourg," *DCB*, p. 513.

113 "The King to Sir Thomas Temple, March 8, 1669," *CSP*, vol. 7, p. 32.

114 René Baudry, "Hector Andigné de Grandfontaine," *DCB*, vol. 1, p. 62. Gerard Malchelosse and Regis Roy, *Le Régiment de Carignan*, G. Ducharme, (Montreal, 1925).

115 J. W. Olmstead, "The Voyage of Jean Richer to Acadia in 1670: A Study in the Relations of Science and Navigation Under Colbert," *American Philosophical Society*, vol. 104, (1960), pp. 624–625.

116 "Traite entre les sieurs de Grandfontaine and Temple, July 7, 1670," *Collections de Manuscrits*, vol. 1, pp. 198–199.

117 J. W. Olmstead, "The Voyage of Jean Richer to Acadia in 1670," p. 626.

118 "Instructions pour le Chavallier de Grand Fontaine, 5 Mars 1670," *Collection de Manuscrits*, vol. 1, p. 193, translation A. Faulkner.

119 "Proces verbal de prise de possession... August 27, 1670," *Memorials of the English and French Commissaries Concerning the limits of Nova Scotia or Acadia*, vol. 1, (London, 1755), pp. 611–612. "Certificat de la reddition de Port Royal, September 2, 1670," ibid., pp. 613–614.

120 D'Aulnay had built another fort near the mouth of the St. John opposite Fort La Tour, a site which was refortified several times subsequently. At this time it was the home of a son-in-law of La Tour, the Sieur de Martignon. Its condition and military significance at this point is not clear. Norman F. Barka, "Historic Sites Archaeology at

Portland Point," pp. 185-186. John Clarence Webster, *Acadia at the End of the Seventeenth Century*, New Brunswick Museum Monograph Series, no. 1, (Saint John, 1934), p. 19. For more on "Fort St. Jean" and the relation of its later plan to Pentagoet see Chapter 4.

121 "Memorial of Monsieur Talon to the King, Quebec, November 10, 1670," in George A. Wheeler, *History of Castine, Penobscot and Brooksville, Maine; Including the Ancient Settlement of Pentagöet*, Burr and Robinson, (Bangor, 1875), p. 217.

122 W. J. Eccles, *France in America*, Harper and Row Publishers, (New York, 1972), p. 60. A. J. Sargent, *The Economic Policy of Colbert*, Burt Franklin, (New York, 1968), pp. 65–66.

123 G. R. R. Treasure, *Seventeenth Century France*, Rivington Ltd., (London, 1966), p. 316.

124 Another consideration was the opening of an alternative commercial outlet for the colonies on the St. Lawrence during the six months of the year for which that river was frozen. Colbert did not express this motive, however, in his orders to Grandfontaine. "Instructions pour le Chavallier de Grand Fontaine, 5 Mars 1670," *Collection de Manuscrits*, vol. 1, pp. 193–194.

125 "Abrege du Roole des Familles, November 8, 1671," Public Archives of Canada, Ottawa, microfilm reel F 768, G 466, p. 9. "Analyse de la lettre de M. le Chevalier de Grandfontaine, 1671," Rameau de Saint-Père, *Une Colonie Feodale en Amerique l'Acadie*, tome 2, Librarie Plon, (Paris, 1889), p. 316.

126 In 1982 Dr. Frank Seibert of Old Town recognized in the collection of the Bibliothèque National, Paris, a map of the Penobscot River, inscribed "Grandfontaine" on the back. Dr. Seibert obtained a photographic copy of the map to use in his research on the Penobscot Indians. In January, 1983 Gretchen Faulkner saw a xerographic copy of the map in the possession of Dr Bruce Bourque, Maine State Museum and realized that it corresponded to a key transcribed nearly a century ago by James Phinney Baxter (*DHSM*, vol. 4, pp. 425–430). The two appear here together for the first time in print. A copy of Grandfontaine's original key can be found in the Public Archives of Canada, Ottawa, C 11 D, F 168, folio 11–14, and the map is also among their holdings.

127 Although never defended by the French, these sites were all fortified later during English and American occupations.

128 Surely he was operating the post for his own profit as well. Translation, A. Faulkner.

129 A. J. Sargent, *The Economic Policy of Colbert*, pp. 65, 66–68, 82, 105. "Lettre de Talon au Ministre Colbert, November 11, 1671," *Rapport de l'Archiviste de Québec, 1930–1931*, Redempti Paradis, (Québec, 1931), p. 163. Translation, A. Faulkner.

130 "Memoir of Talon to the King, November 2, 1671," in George A. Wheeler, *History of Castine, Penobscot and Brooksville, Maine*, (Bangor, 1875), p. 218. Georges Salagnac, "Jean Vincent Abbadie de Saint-Castin," *DCB*, vol. 2, pp. 4-7.

131 "Lettre du Gouverneur de Frontenac au Ministre, November 2, 1672," *RAPQ 1926–1927*, p. 17.

132 "Memoire de Talon sur Canada (1673)," *RAPQ 1930–1931*, p. 179. Translation by A. Faulkner.

133 "Grandfontaine", *DCB*, vol. 1, p. 63.

134 Sybil Noyes, Charles Thornton Libby and Walter Goodwin Davis, "Thomas Gardiner," *Genealogical Dictionary of Maine and New Hampshire*, Genealogical Publishing, Inc., (Baltimore, 1972), p. 253. "Henri Brunet to M. le Chevalier de Granfontaine, February 4, 1675," *New England Quarterly*, vol. 13, (1940), p. 108.

135 Although the establishment of commercial relations with Boston was tolerated out of necessity, the French authorities hoped that Acadia would eventually cease to be economically dependent upon Massachusetts. Similarly, the government of Massachusetts tended to frown upon commerce with the French, but nevertheless her merchants engaged actively in the Acadian fisheries and coasting trade.

136 Grandfontaine's recall was undoubtedly politically motivated. Relations between Jean Talon, Intendant of New France and Grandfontaine were cordial, but with Talon's return to France in 1672, his replacement, Louis de Baude de Frontenac immediately began to suggest Jacques de Chambly as a replacement for the "inept" Grandfontaine. "Lettre du Gouverneur de Frontenac au Ministre Colbert, November 13, 1673," *RAPQ 1926–1927*, p. 43.

137 "Brunet to Colbert, November 7, 1674", *New England Quarterly*, (1940), p. 101. See also "Instructions to the Sieur La Tour, 1673," Archives de la Marine, C^7, dossier 169, quoted in John G. Reid, *Acadia, Maine and New Scotland*, (1981) p. 161n.

138 Rene Baudry, "Jacques de Chambly," *DCB*, vol. 1, p. 185. Cyrille Gelinas, *The Role of Fort Chambly in the Development of New France, 1665–1760*, Minister of Environment, (Ottawa, 1983), pp. 9–14.

139 "Lettre du Gouverneur de Frontenac au Ministre Colbert, November 13, 1673," *RAPQ 1926–1927*, p. 50. *Relations Inédites de la Nouvelle France*, (1672–1679), vol. 2, Éditions Élyséé, (Montreal, 1974), pp. 8–12. When d'Aulnay controlled Pentagoet, a Capuchin mission was established at Pentagoet. Recent archaeological evidence suggests that this mission, Our Lady of Holy Hope founded by Brother Leo of Paris, was located about five hundred meters west of Fort Pentagoet. It is highly likely that a later Jesuit mission was also located away from the fort. The Jesuits as a rule placed their hospices apart from European communities to prevent the corruption of their native converts by European vices and to facilitate native conversion to the Catholic faith. See James Axtell, *The Invasion Within*, Oxford University Press, (New York 1985).

140 Unfortunately neither Chambly nor Frontenac identifies what kind of "certificats" Grandfontaine seized.

141 "Lettre du Gouverneur de Frontenac au Ministre Colbert, February 16, 1674," *RAPQ 1926–1927*, p. 54.

142 "Brunet to Colbert, November 7, 1674," *NEQ*, 1940, pp. 100–101. William I. Roberts, III, "Jurriaen Aernoutsz," *DCB*, vol. 1, pp. 39–40 and "John Rhoades," *DCB*, vol. 1, p. 573. C. W. Tuttle, *Historical Papers*, John Wilson & Son, (Boston, 1889), pp. 137–139.

143 "Plea and Answer of Peter Rodrigo & others, May 17, 1675," *DHSM*, The Thurston Print, (Portland, 1900), vol. 6, p. 54.

144 The trader Brunet is not explicit in revealing Chambly's motive for placing the cannon outside the forts, but it may have been to to instill the fear of God in the Indians. Brunet does refer to Chambly's "cruelty," in this context. Possibly the cannon were intended to defend a mission outside the fort. In any event, it is unlikely that a military engineer such as Chambly would have placed all of his cannon outside the fort, as Brunet implies.

"Brunet to Colbert, November 7, 1674," *NEQ*, (1940), p. 101. "Brunet to Grandfontaine, February 4, 1675," *NEQ*, (1940), p. 108.

145 "Brunet to Grandfontaine, February 4, 1675," *NEQ*, (1940), p. 108. Frontenac puts the number of soldiers at Pentagoet at 30: "Memorial from Count Frontenac to the Minister, November 14, 1674," in George A. Wheeler, *History of Castine, Penobscot and Brooksville, Maine*, (Bangor, 1875), p. 219.

146 "Memoire des Services rendus par les sieurs de St-Castin, père et fils dans le pays de Canada en la Nouvelle France, 23^{e} Avril, 1720," in Robert Le Blant, *Le Baron de St-Castin: Une figure légendaire de l'histoire Acadienne*, P. Pradeu, (Dax, France, 1934), pp. 43, 158.

147 "A Memorial Concerning the English Title to Penobscot," *DHSM*, vol. 10, p. 29. "Plea and Answer of Peter Rodrigo & others," *DHSM*, vol. 6, p. 54.

148 "Plea and Answer of Peter Rodrigo & others," *DHSM*, vol. 6, p. 55.

149 "Lettre du Gouverneuf de Frontenac au Ministre Colbert, 14 Novembre, 1674," *RAPQ 1926–1927*, Librairie Amable Proulx, (Quebec, 1927), pp. 73–74.

150 "Brunet to Colbert, November 7, 1674," *NEQ*, (1940), p. 101.

151 It is quite possible that the illiterate and overzealous Dutch pirates did not fully understand the limits of their commission, as they argued subsequently when they were brought to trial. "Plea and Answer of Peter Rodrigo & others," *DHSM*, vol. 6, p. 67.

152 "Brunet to —, February 2, 1675," *NEQ*, (1940), p. 103. "Plea and Answer of Peter Rodrigo & others," *DHSM*, vol. 6, p. 56.

153 "Answer to Complaint of the Lord States General, October 6, 1676," *DHSM*, vol. 6, pp. 131–135.

154 "Plea and Answer of Peter Rodrigo & others, May 17, 1675," *DHSM*, vol. 6, p. 63.

155 "Brunet to —, January 13, 1676," PAC, Collection Clairambault, MG7 1A5, vol. 106, no. 864, p. 87.

156 "Journal du voyage de M. Brunet en le Navire Callaisien par les ordre de Monsieur Lintendant Colbert de Terrou, 17 Nov, 1673," PAC, Collection Clairambault, MG7 1A5, vol. 106, no. 864.

157 Gargas, "General Census of Acadia by Gargas, 1687-1688," in William Morse, ed., *Acadiensia Nova*, Bernard Quaritch, (London, 1935), vol. 1, pp. 139-155.

158 Archaeological research is currently underway at Saint-Castin's Habitation: Alaric and Gretchen Faulkner, "The Settlement of Acadian Maine in Archaeological Perspective," *Northeast Historical Archaeology*, in press.

Chapter 3

"The Fort, whatever it is" Transformations and First Impressions of the Ruins

It would be unreasonable to attempt a reconstruction of Pentagoet as it stood in the 17th century without considering first the transformations it has undergone in the intervening centuries. While the 17th-century archaeological components are very well preserved, the site has been subjected to significant changes since it was devastated by Captain Aernouts' privateers in 1674. Some of these are the natural, predictable results of deterioration expected in any archaeological site—processes such as decay, erosion, and rodent disturbances. Other transformations, the results of human activity, are not nearly as predictable and deserve special consideration. The modifications for which there are written records or clear archaeological remains generally reflect two kinds of phenomena: activities associated with daily life on the premises and purposive excavation for "relics."

Post-Pentagoet Settlement

Pentagoet was visited repeatedly after its demise, but the first significant occupation began about 1760 and lasted only a few years; sustained occupation of the premises did not begin until the middle of the 19th century. The resulting modifications to the site range from such deliberate acts as robbing the "Old French Fort" for building materials, remodelling the masonry remains to serve as foundations for outbuildings, and landscaping the lawn, to the unselfconscious dumping of refuse in the parade ground and in other depressions in the rubble of the fort.

The Aftermath of Defeat 1674–c. 1677

The circumstances of the destruction of Pentagoet, when, "the Dutch tooke the fort at Penobscot from y^{e} French," and "levell'd it wth y^{e} ground,"[1] are sketched briefly in the testimony of the Dutch pirates themselves at their subsequent trial in Boston in May, 1675:

> "In Due tyme we Arrived on the Coast of Nova Scotia, and Landed at Penobscott the Enemies Principle Garrison the w^{ch} in storming after a shortt Dispute, by Gods Blessing quickly made our selues Masters Thereof. but hauing not sofitient strenth to Leaue to Garrison the Place, wee Demolished the ffort and fired sume of the houses of the ffrench, bringing a way the Artillerye & Plundo^{r}. And after wee had made our selues masters also [of St. John, Jemseg, Machias and other French trading houses]... we did not only Burrye in two Glass Bottles at Penobscott & St Johns vndo^{r} Ground, A true copia of our Cap^{t} Comition and a Breviate of the Mañno^{r} of takeing the said Places by the Swoards of the Prince of orringe subject for his highnes use, but also left both att Penobscott and Jamshoke [Jemseg] Sume men of the poorer soart of oure Capt^{ives} the former Inhabytance whome wee gaue libertye to trayd and orde^{r}d to keepe Possion for his highnes till farther orde^{r} or Sum of vs Retorned theither.[2]

Ostensibly, their intention in destroying the fort was to render the settlement defenseless, but still viable and capable of producing revenues. The Dutch clearly were not prepared to occupy the settlement, nor were they interested in doing so. They depended instead on the handful of French who swore loyalty to the Prince of Orange to manage their new holdings, and spared the settlers' houses from destruction. These were probably undefended homesteads situated well away from the fort.

By their own account, the Dutch "demolished," the fort itself. Archaeological remains on the seaward half of the fort showed clearly the bomb craters and remains of incendiary devices used in the initial bombardment, and the charred timbers and flooring of the subsequent conflagration. But it is also apparent from written accounts that not all of the superstructure and defenses of the fort were burned, and that plenty of iron hardware remained to be salvaged amid the rubble:

> The inabytants of Pemequid or quack & severall English fishermen Came to Penobscott whare did not only Break. vpp: the Plankes of our Demolished ffort and Gott out y^{e} Iron worke and Speikes, & carried them away, but also Robed pilidged & plundered ou^{r} Poore Subjects w^{ch} wee Left to keepe Possesion for our Prince till we retorned of all

> theire pvition and store w^ch^ wee left them for to sustayne there Poore ffamelys in the hard winter. that nessetatees the men to Leaue there wifes and children to Joyne with the Indians, and with them Runñ in the woods a hunting for there ffameleys to Keepe them from starueing whilst yo^r^ English had taken their pvition as aforesaid from them that when we Retorned, those our Subjects presently welcoming of vs, that the abuises they so Receved from the English was tenñ times worse, then when the Dutch first came and tooke there fforts.[3]

These episodes of repeated scavenging are reflected in the condition of the ironwork recovered in excavation. Where not deeply buried in the rubble, staples, spikes, nails, bolts and other fastenings were usually broken or bent—the result, not just of the collapse of the buildings, but of the forcible removal of the more valuable ironwork which they once mounted.

The trial and subsequent banishment of the pirates put an end to Dutch claims to Pentagoet, and thereafter they "entirely quitted it."[4] For a second winter, however, the French soldier-settlers stayed on, desperately struggling to survive and awaiting news from France of their fate. During this interval the French trader Henri Brunet supplied them as best he could with essential provisions, and notified Governor Frontenac of their plight. He argued for the maintenance of the settlement lest the coast of Western Acadia be taken over by the New Englanders, who already had 60 to 80 vessels of various sorts plying the fisheries.[5] Frontenac's response to Brunet has not been discovered, but it seems likely that these un-named families were rescued in due course, and perhaps were transported to Québec. Alternatively, they may have been caught up with the Indian cause, participating in the uprisings of 1676 which decimated most of English Maine.[6] In any case they do not appear to have been present in subsequent French resettlement of the region.

Later French and Indian Settlement c. 1677–1759

When Saint-Castin reoccupied the area c. 1677, he completely abandoned Pentagoet in favor of another location further up the Bagaduce River.[7] As recorded a decade later, his habitation consisted only of his family, a few servants and a priest—six adults and seven children—living together at the center of an Indian village, and there is no indication of any other French settlers remaining in the immediate vicinity.[8] Maps and charts of the 1680s and 1690s show consistently that the old fort was left in ruins, and served as little more than a landmark or a meeting place.[9]

This was still the case in October of 1710 when the fort was visited by Major John Livingstone, envoy from the English Council of War, who was to deliver a letter to the French Governor of Québec concerning the recent fall of Acadia to the English. Both sides agreed that Saint-Castin's son Anselm should accompany him and guarantee his safe passage. Waiting to rendezvous with the younger Saint-Castin, Livingstone spent two months encamped with Indians on "ye Island of Lett [Nautilus Island], which was over against a ruined fort called Shamble [Chambly, or Pentagoet] formerly taken by ye Dutch."[10]

After the formal surrender of Acadia to the English by the Treaty of Utrecht in 1713, attempts were made to clear the area of French and Indians in preparation for English settlement. Colonel Thomas Westbrook, for example, mounted a major expedition to the Penobscot in 1722-23, but as late as 1725 the Pentagoet region was still being exploited by a son of Saint-Castin.[11] The area was not actually colonized until after the visit in 1759 of Massachusetts' governor, Thomas Pownal, who commissioned the construction of Fort Pownal on the west side of the Penobscot River, near the modern village of Stockton Springs. Upon his departure towards the end of May, Governor Pownal paid his respects to the Old French fort across the river.

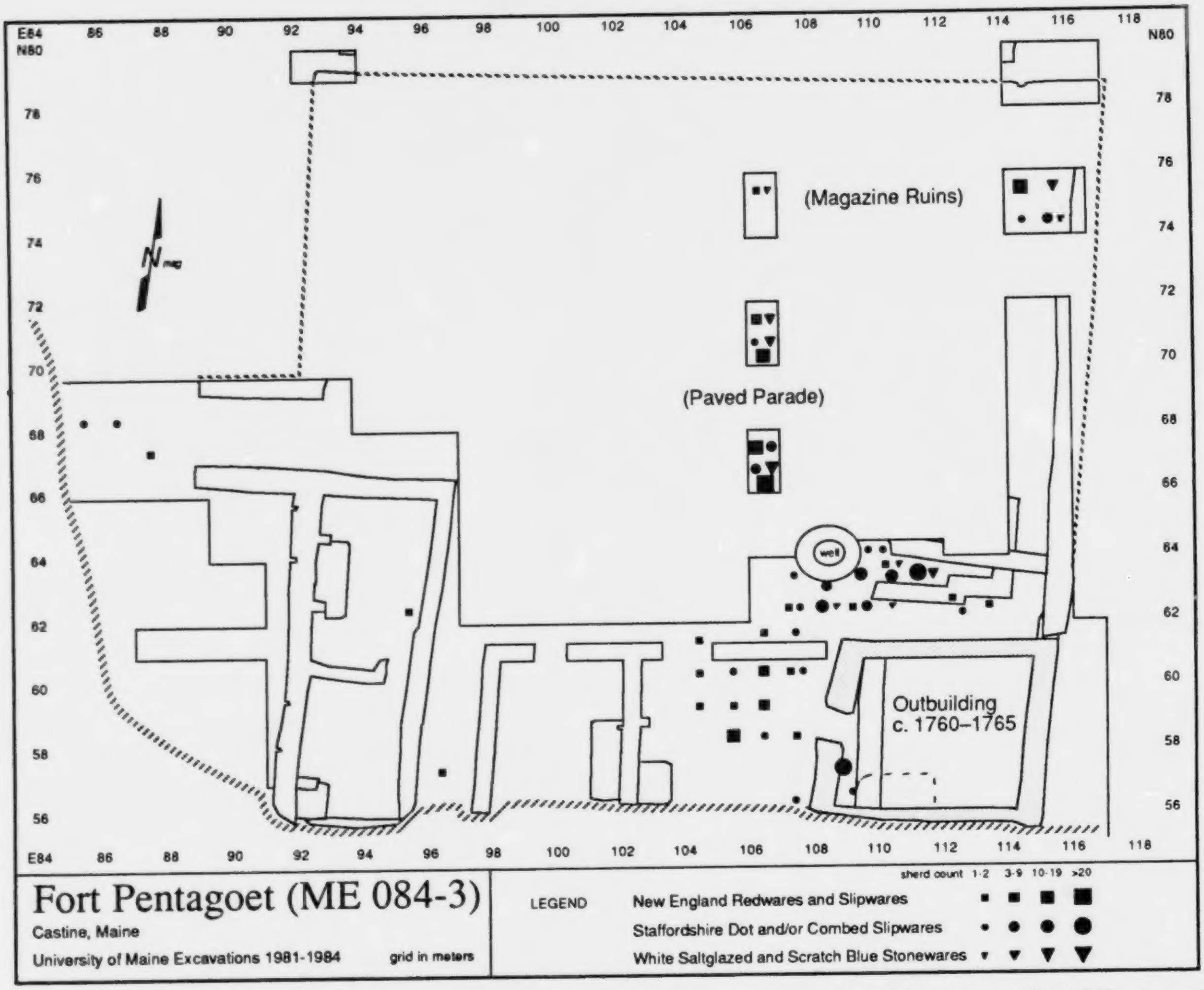
> About noon… went in the Sloop Massachusetts to Pentaget, with Capt. Cargill and 20 men, found the old abandon'd French Fort and some abandoned Settlements. Went ashore into the Fort. Hoisted the King's Colours there, and drank the King's health.[12]

Governor Pownal's subsequent description, the first made since the evacuation of Pentagoet more than 80 years before, indicates that the layout of the French establishment and their improvements to the land were still quite recognizable.

> I saw the Ruins of a French Settlement, from which the Scite and Nature of the Houses, and the Remains of Fields and Orchards, had been once a pleasant Habitation; one's heart felt Sorrow that it had ever been destroyed."[13]

Staples and Gray Homesteads c. 1760–1765

The only significant assemblage of post-Pentagoet artifacts, apart from sheet refuse of the 19th century, derives from a brief habitation upon the ruins of the fort during the initial period of English resettlement. Though the historical record of this occupation has been transmitted partially through oral tradition and has been garbled by family genealogists concerned with determining the "first male child of English parentage born east of the Penobscot River,"[14] it is apparent that Fort Pentagoet was used as a temporary shelter for two successive families between c. 1759 and c. 1765. First was that of John Staples, "who, it is said, lived near the French Fort at Bagaduce Neck, now Castine, and had a son William born there."[15] The Staples family lived "in the old French Fort" only briefly, c. 1760, and "moved thence to Naskeag point within one year."[16] Thereafter the family of Reuben Gray occupied the site. Gray, probably like Staples before him, "came to that place from Fort Point [Fort Pow-


E84 86 88 90 92 94 96 98 100 102 104 106 108 110 112 114 116 118
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N mag
(Magazine Ruins)
(Paved Parade)
well
Outbuilding c. 1760–1765
Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND
sherd count 1-2 3-9 10-19 >20
New England Redwares and Slipwares
Staffordshire Dot and/or Combed Slipwares
White Saltglazed and Scratch Blue Stonewares

Figure 3.1 Distribution of 18th century ceramics from the Staples-Gray occupation of Fort Pentagoet, c. 1760-1765. A small outbuilding (shaded) was built within the rubble in the end of the former French Barracks/Workshop.

nal]," and took up farming. His son Reuben, interviewed at age 96 in 1858, was born June 3, 1762, "in the old baron de Castin's house," which was actually the Staples homestead within Pentagoet.[17] The Gray family remained at the site for only four or five years.

The archaeological evidence of the Staples-Gray occupation is strictly confined to the central parade ground and the southeast corner of the fort. (Figure 3.1). Staples evidently partitioned off the eastern end of the old Barracks/Workshop, Structure 2.3, using what remained of the walls as the foundations for a one-room outbuilding.[18] The principal dwelling, it is assumed, must have been located nearby in an area yet to be excavated. The refuse from this occupation generally lies above the earlier French strata, and has caused relatively little damage to them.

For the moment, it is sufficient to note that the Staples-Gray artifact assemblage is quite distinctive, consisting principally of ceramics, tobacco pipes and glass bottles typical of the 1750s and 1760s (Figure 3.2). Notably absent, however, are the many popular English ceramic types and wine bottle forms made after 1765, indicating that the domestic occupation surely did not extend to the American Revolution.[19] Thus, although Castine was the focus of revolutionary war activity, particularly the famous Penobscot Expedition of 1779, there were no encampments at the old French fort at this time.

Reuben Gray sold the lot containing the fort to one Aaron Banks in 1765, and the primitive homestead on the property was apparently abandoned.[20] William Hutchins of Castine, when interviewed at the age of 90 in 1855, remem-

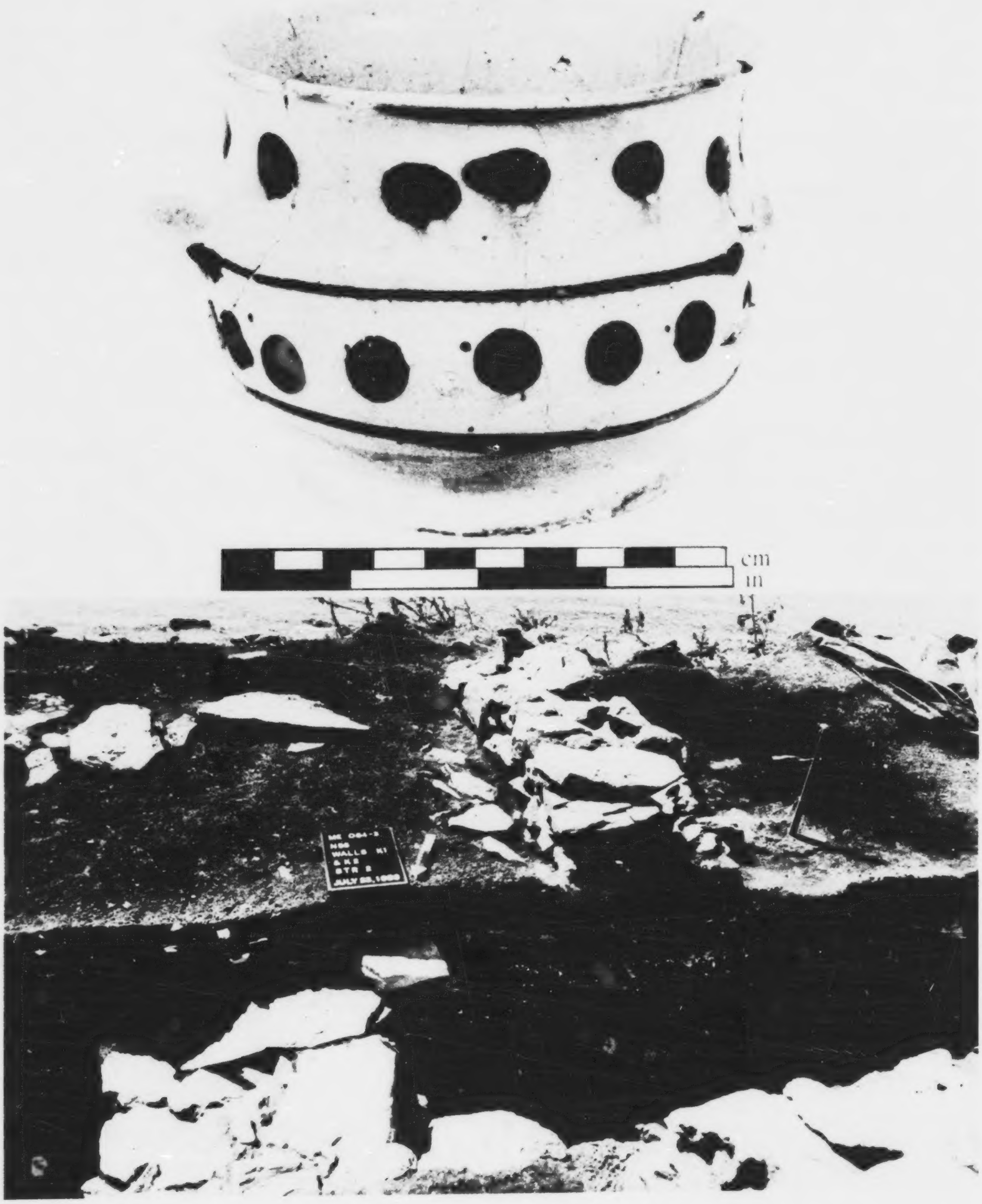


Figure 3.2 English posset cup of Staffordshire dotware (*top*) found at the base of the Staples partition wall (*bottom*). The wall lies directly on top of the fired daub from the demolition of the French building. Footings for an earlier partition beneath the daub appear at lower left.

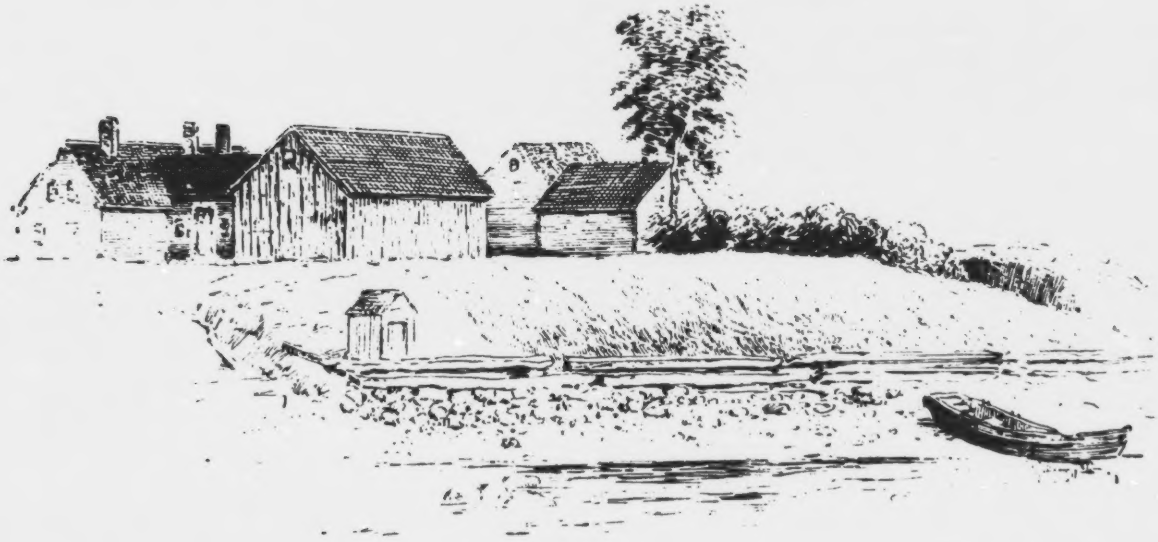


Figure 3.3 The Coombs-Webb house and barn at Pentagoet c. 1890, left. Note the low timber-and-fieldstone bulkhead, apparently a short-lived attempt to arrest erosion of the bank. Pen and ink drawing from *The Pine Tree Coast* by Samuel Adams Drake.

bered well the old fort on the Banks property as it existed in the years immediately prior to the American Revolution.

> As long ago as I can remember there was what was called the old French fort down by the shore below Banks' house. There were a good many spruce poles around it, & posts in the shore when I was a boy. There used to be a considerable growth of oak there near the shore."[21]

So, while the area about the fort had become overgrown, the remnants of the bulkhead which retained the water front and the remains of the spruce palisade were still standing a century after the compound of the fort was destroyed.

Coombs-Webb House c. 1850–1921

No further construction occurred at Pentagoet until the 1850s when a house was built immediately to the north of fort. This was a typical one-and-a-half story cape in Greek Revival style, arranged in the linear connecting architecture popular in Maine at that time—"big house, little house, back house, barn,"[22] except that a small gap existed between the ell and the barn (Figure 3.3). The original cellar ran only under the main portion of the house, farthest from the site, and probably did little damage to the archaeological remains. The "little house, back house" ell, placed on shallow granite footings, extended towards the fort, just outside the outer perimeter. The separate barn, however, was located within the curtain, and placed squarely over the depression formed by the cellar of the Magazine (Structure 3), perhaps utilizing portions of the rubble for foundations, as was the case for the Staples outbuilding. It was here, under the protection of the barn, that one of the subsequent amateur excavations was conducted in 1892, and the building continued to shelter these remains for many years.[23]

Our Lady of Holy Hope 1921

Realizing the historical significance of the property, Bishop Walsh of the Diocese of Portland purchased the residence in 1920.[24] Immediately thereafter he authorized the remodeling of the house into a church, named "Our Lady of Holy Hope," after its supposed antecedent, a Capuchin mission, at Pentagoet.[25] In the remodelling the inside of the house was gutted, the windows replaced, and the connecting ell torn down and rebuilt to provide a church vestry (Figure 3.4). The barn over the Magazine was razed, and a large amount of the demolition debris was used to backfill the early excavation pits, particularly the Magazine cellar.[26] Evidently considerable grading was done on the back lawn at this time in preparation for the church dedication, and photographs of the back lawn recording that ceremony show little evidence of the ruins of Pentagoet on the surface.[27] The "temporary" chapel, was dedicated on August 28, 1921, and stands in essentially the same form today.[28]

Other than landscaping, the principal damage done to the site in the remodelling was the construction of a tile drain for the church cellar. Incredibly, rather than run the drain directly into the brook immediately to the west, the

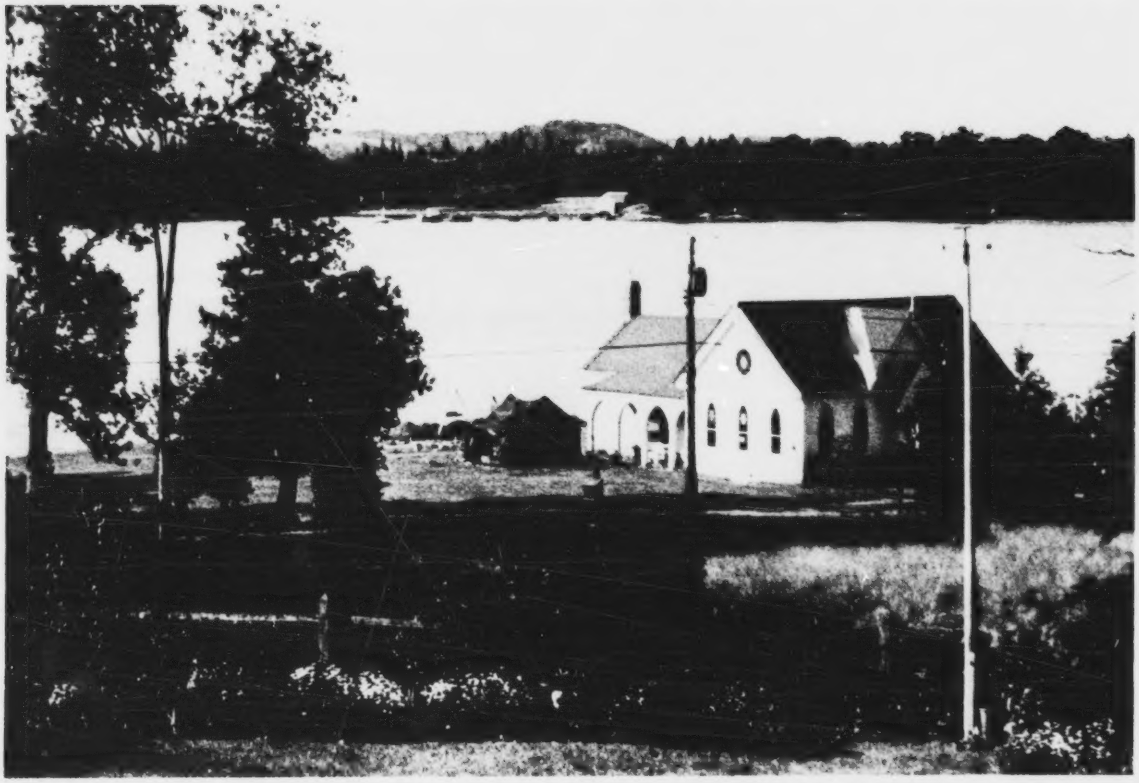


Figure 3.4 Church of Our Lady of Holy Hope in 1981, appearing very much as it did at its dedication in 1921.

builders opted for an ocean side outlet and trenched right through the site all the way to the shore. In the process, the eastern wall of the Dwelling, Structure 1, was severely damaged. There may have been some subsequent construction damage as well when a basement was excavated under the vestry to provide space for a furnace, and a septic tank was buried immediately to the west of the building, in the vicinity of the fort's northwest bastion. Otherwise, recent damage to the site had been largely restricted to numerous post holes for a succession of crosses and large signs which penetrated Structure 1 and Structure 2 on the seaward side of the site.[29]

Rev. John McVicar c. 1955

In the mid 1950s, attempting to make the now overgrown landscape of brush and fence posts more presentable, Father John McVicar recruited next door neighbors and volunteers from the Maine Maritime Academy to clear the property.[30] Local rumor maintains that the yard was extensively bulldozed in pushing the brush over the bank and leveling the lawn, thus supposedly obliterating the remains of Fort Pentagoet. This was true only in small measure, for although some masonry from the eastern wall of the fort was apparently toppled at this time, most of the earth moving did little major damage to the site. In reality, Father McVicar had sterile gravel hauled in and spread over the lawn's surface to fill in the numerous depressions. Rather than destroy the ruins, he covered them and contributed inadvertently to their protection.

Excavations 1863–1915

Since shortly after the construction of the Coombs-Webb house, amateurs have conducted small-scale excavations at the site—some for legitimate historical research and others with no motive beyond treasure hunting. The net results in both cases have been similar. Few artifacts or records from archaeological investigations undertaken at Fort Pentagoet in the 19th and early 20th century are available today. Reports are ambiguous regarding the areas actually exposed, and the extant artifacts generally lack provenience. Even Castine historian Dr. George A. Wheeler, whose collection may have been one of the largest taken from the fort, went no further in describing his materials than to note that they included "many old hinges, bolts, tomahawks or hatchets, [aboriginal] stone axes, chisels or gouges, and other curiosities."[31] No systematic research strategy was followed beyond collecting relics and estimating the dimensions of the fort; the larger the fort was imagined to have been, the greater its significance became.

Midnight Fortune Seekers 1859

The first recorded attempt to excavate at Pentagoet was the looting of a well located in southeast quadrant of the fort at the edge of the parade. This feature was "discovered" in 1859 "by four men who came from Bangor, and found it by the help of a 'mineral rod,' in the night time. They said afterwards that they were told to look for it by a spirit medium, who proved to be a woman who had formerly lived in Castine. They found no treasure and were greatly disappointed."[32]

Yet their efforts were not entirely fruitless, for "in their midnight explorations" these pothunters "fished up a curious iron implement which might have been a bell hammer and might not, but no gold."[33] A later cleaning of the well yielded "powder horns, arrowheads, hatchets, and other implements of war-like nature"[34] and perhaps a bartmann jug of Frechen stoneware, today in the possession of a relative of Dr. Wheeler. Current research indicates that this well was probably built within d'Aulnay's original house, and may be one of the earliest remaining features of Fort Pentagoet.

A Series of Discoveries 1863

The year 1863 saw a few important discoveries relevant to the archaeology of the fort. On the beach just below the site, an anonymous collector found a gold "demi-Louis" bearing the date 1642, one of the few diagnostic artifacts recorded from early excavations.[35] Immediately to the west of the fort, on the other side of a brook, some European burials were apparently unearthed in the construction of a basement. While digging a cellar for the kitchen ell of a Greek revival house, a structure very similar to the Coombs-Webb house, James Webster apparently came across "the skeletons of five Dutch seamen, killed during the assault and capture of the Fort." The remains were buried "side by side and head to foot at right angles to the shore, with hands crossed upon their breasts" (Figure 3.8, 10). That same year, perhaps while landscaping the back lawn, Webster found "graves of three French soldiers killed while defending the fort," the arrangement of the skeletons suggesting "a hurried or careless burial" (Figure 3.8, 11). The identification of the nationality of the skeletons was probably suggested by the difference in care of the interments: those who fought on the victorious side must have received the better treatment.[36] This inference is probably specious, however, and it is more likely that the five skeletons found under the kitchen ell were from the fort's cemetery.[37] Unfortunately no further information survives concerning any of these burials.

Also in 1863, fisherman William Weeks made a major find about seven hundred meters west of the fort. There he discovered a copper plaque engraved with the inscription: "1648 8 IVNII F LEO PARIS·IN CAPV.C· MISS POSUI HOC FV-NTM IN HNR-EM NRÆ DMÆ SANCTÆ SPEI" (June 8, 1648. I, Brother Leo of Paris, in the mission of the Capuchins, set this foundation in honor of Our Lady of Holy Hope).[38] At the time, this plaque was thought to have been transported from the small chapel at Pentagoet, but it appears now to have been found in place at the site of a separate mission.[39] Good photographs of the plaque survive, but the artifact itself does not, and no documentation has been discovered which would clarify the relationship of this mission to d'Aulnay's fort, or indicate its duration.

"The Roots of Ancient Molars:" Souvenirs for Residents and Summer Rusticators c. 1870–1890

About the time Castine evolved into a popular summer community, Pentagoet became something of a tourist attraction. The barn was painted with a huge inscription advertising "Site of Old French Fort," the first of a sequence of signs which have continued to mark the site to the present. As a result, the fort became subject to a new form of vandalism. Erosion of the water front was in an advanced state:

> It was inclosed by a stockade of huge oaken palisades, the stumps of which, like the roots of Ancient molars, are occasionally extracted from the sandy ooze of the shore in which they have been embedded for more than two centuries.[40]

Visitors and local residents pulled out the stumps of the former palisade line and converted them into "canes, crosses and other ornamental relics."[41] Evidence of this activity appeared in the 1982 excavations when a clearly defined robber's trench was found along with a series of holes left from the removal of the palisades (Figure 3.5). Souvenir hunters dug around the tops of these pilings exposing just enough to work them free. A few of these pilings survive today in private collections.[42]

Samuel T. Noyes 1878 and 1880

The first major excavations conducted at Pentagoet proper appear to have been done by a Castine shipwright, Samuel T. Noyes, in 1878 and in 1880, and were recorded only in passing references.[43] This initial work appears to have been confined mainly to the stripping of sod from the center of the parade and from the surrounding slate rubble. But the resulting configuration of stonework proved confusing to those who sought to interpret the ruins and who were unable to distinguish rubble from structural remains (Figure 3.6). Although there were many attempts at interpreting the scene at this time, the clearest observations were given by a reporter from an unidentified Portland newspaper who recorded the visit of the Maine Historical Society to the Fort in late September, 1880.

> The excavations made in preparation for the visit of the Society reveal a singular sub-structure of something—no one knows what. Here are double walls

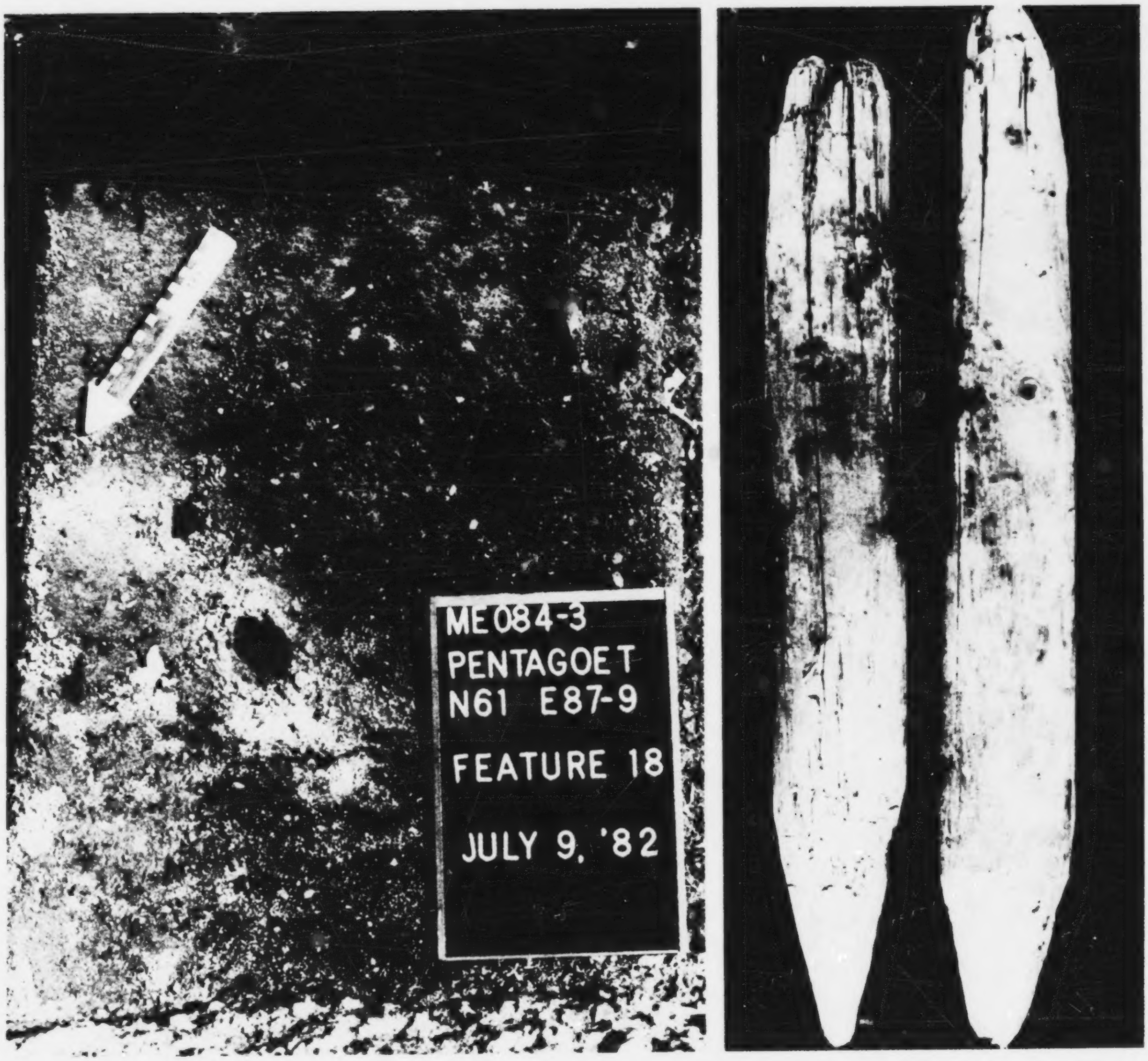


Figure 3.5 The palisade line of Pentagoet was partially preserved as a line of open holes (*left*). Remarkably, the form of these pales were preserved when the wood was pulled out by souvenir hunters c. 1870–c. 1890. The stubs of two spruce pales from the site are still in the collections of the Wilson Museum (*right*).

[inner and outer building walls] filled in between with masses of a fine grained slate rock, not found here, much of which is set up edgewise [toppled rubble on edge]. The thickness of the two walls and the intervening mass of slate-rock is twenty-five feet, and they surround on all four sides an enclosure 31 by 35 feet [the Parade ground]. The outer wall, facing the shore, is five feet high, but the depth of the enclosure is but one or two feet. It seems to be paved with flat stones [actually beach cobbles]. On the land side, at the opposite corners, are two long, narrow entrances between the low stone walls. At the entrance of one of these was found the crumbling remains of what might have been a door post, and also rusty hinges and bolts. Here also were found hatchets and other implements. Here also is a deep well in which many relics have been found. It is of oval form, handsome-

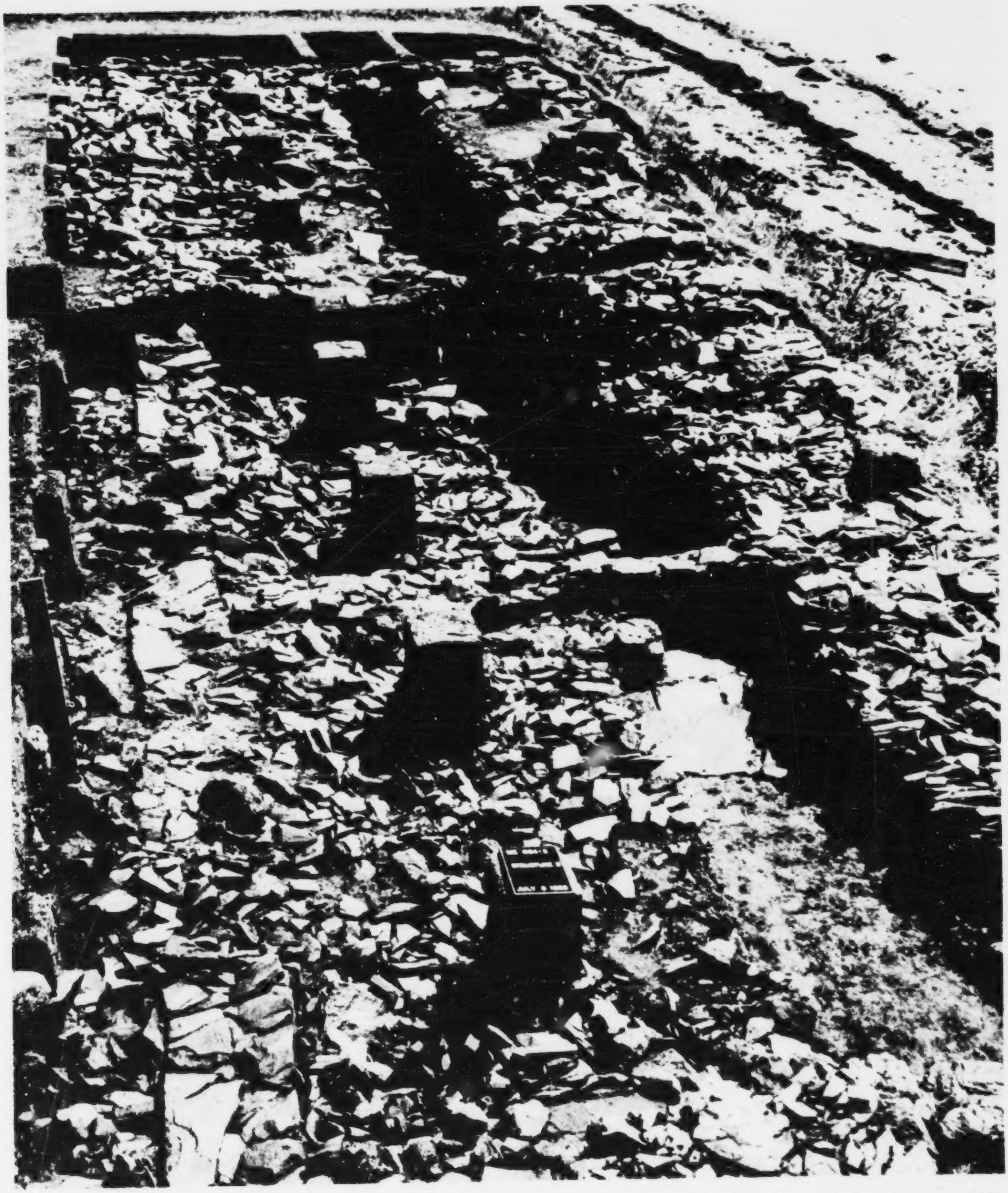


Figure 3.6 Wall and rubble at Pentagoet exposed on edge, 1981. Exposures such as this baffled investigators century earlier, as they were unable to distinguish masonry from demolition debris.

> ly stoned up, to a point about five feet below the surface where the corner of a projecting stone-wall juts over it. At three points there are projections in the outer wall, resembling demi-bastions.... Here was a stronghold, convenient to the shore. It had a line of palisades in front of it, on the beach, remains of which have come down to our day.... Outside the wall there are to be seen in the excavations made to-day the mingled ashes and clam shells which tell of [the Indians] seaside feasts.[44]

While the interpretation of the organization of the fort is erroneous, the description is quite detailed, and gives a clear picture of the ruins exposed in 1880. These were substantial, "evidenced by solid foundation walls cropping out from the surface of the ground," including the seaward curtain, which was still preserved to a height of at least five feet.[45] The perimeter of the inner compound could be seen in outline, and the limits of the outer palisades were still apparent. Building foundations remained buried beneath their own rubble, and the masonry of toppled stone walls and chimneys was visible on edge. Patches of the inner parade ground appeared in rubble free areas, and the oval well, yet to be "reconstructed" stood partially covered by wall of later construction.[46]

Expecting a much larger fortification, the visitor mistook the parade ground for a building interior, and the surrounding buildings of the compound as "double walls" about the supposed central structure.[47] The original proponent of this interpretation was Dr. George A. Wheeler, who had finished his history of Castine just five years earlier. The impression of small scale given by the ruins thoroughly rattled Wheeler, who calculated that the outline of rubble in the back yard was "not large enough to contain all the buildings" recorded at the turnover of the fort in 1670 (Appendix A). He misidentified the courtyard as "the remains of the magazine alone, and the embankments are the remains of its *foundations* [italics his]," asserting that "the discovery, not many years ago of an old well, almost in the center of this of the supposed fort, proves this conclusion to be a correct one."[48] Wheeler thought that the old well found by the Bangor treasure hunters of 1859 was the the same well mentioned in the Act of Surrender of Pentagoet in 1670 and located in the cellar of the Magazine. Thus he confused the courtyard with the interior of the Magazine. Struck by the apparent incongruity of the archaeological remains and the early plans and descriptions, he soon began to "doubt whether these remains are those of Fort Pentagoet."[49]

Though Wheeler held the prevailing interpretation of the fort's remains, not all of his contemporaries were as confounded by the mixed ruins and rubble before them. About this time, another historian, John E. Godfrey, identified correctly the limits of the fort.

> As near as can be judged from the indications upon the ground, the fort was about seventy feet square and had a moat on three sides. There are posts on the beach which are the remains of works probably intended for the protection of the boats, as well as for other purposes.[50]

Collins' Excavations, 1892

Wheeler's interpretation of the fort was substantially revised in November of 1892, when Dr. Willard C. Collins and his brother John, the new property owners, began fresh excavations underneath the barn (Figure 3.8, 21). There they discovered and correctly identified the actual cellar within the Magazine (Structure 3), a feature recorded as some thirteen feet by forty feet (3.9 m x 12 m) and seven feet nine inches deep (2.3 m). In the northeast corner of the cellar was the missing interior feature: a semi-circular slate well twenty-six inches (35 cm) in diameter and some seven feet (2.1 m) deep. Also exposed was a drain leading from the well which supposedly ran under the fort and out through the erosional scarp to the beach.[51] Artifacts attributed to this excavation include some "curious pottery ware... and an old-fashioned faucet, some iron tools and a few pieces of wood, mostly charred by fire."

Wheeler subsequently drew a highly schematic plan of the fort showing the new excavations (Figure 3.7). The drawing shows his continued difficulty in distinguishing rubble, pavement, and foundations, and contains some fanciful detail of spurious "entrances." While Wheeler still maintained that "nearly one half of this fort," or "at least one hundred and fifty feet of the shore" had washed away, his drawing shows rather well the limits of the compound; his estimate of 78 feet for the length of the western curtain is essentially correct. He also identified the small redoubt at the true entrance to the fort, suggesting that it was some form of "bastion."

Arthur and J. Howard Wilson 1900–1904

Between 1900 and 1904 two aficionados of the emerging field of archaeology, brothers Arthur and J. Howard Wilson carried, out some excavations nearby. These probably focused on a well-known aboriginal site on their own property about 100 meters west of the fort, and may not have included the deposits at Pentagoet proper. Here they "carefully excavated and trenched the property including the shell heaps."[53] Unfortunately no other information on these excavations has been located, but some of the prehistoric artifacts from this investigation remain in the collections of the Wilson Museum, founded by J. Howard Wilson in 1921.[54]

Charles W. Noyes 1907

Charles W. Noyes, son of Samuel, was a traveling shoe salesman who became the unofficial successor to Dr. Wheeler as Castine's historian. He too attempted to reconcile the archaeological remains with the existing historical documentation. Apparently he made no archaeological tests on the site himself; rather he used data from earlier excavations,

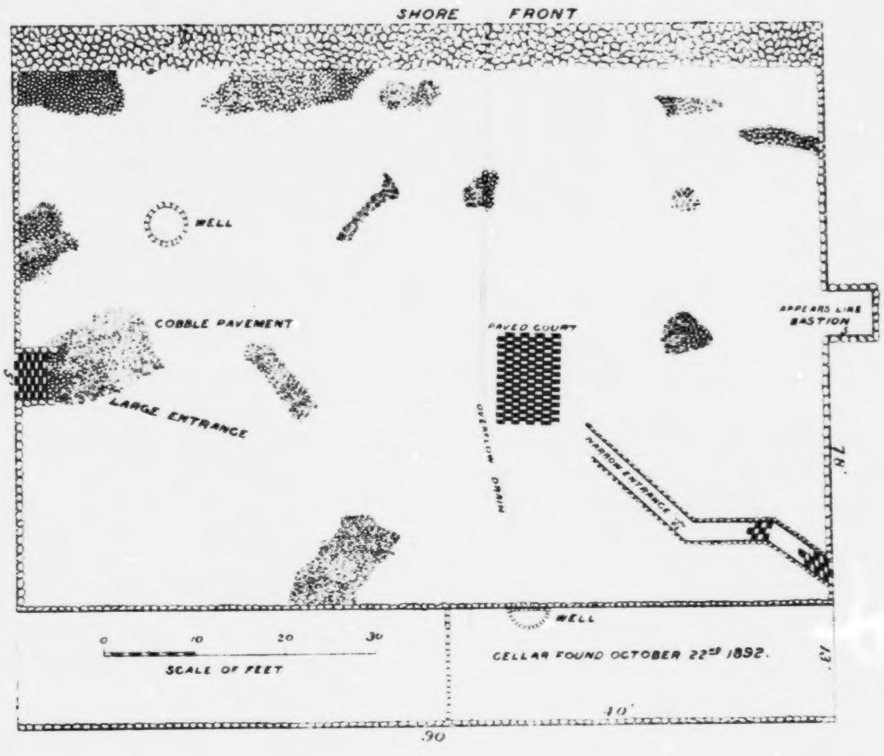


Figure 3.7 George A. Wheeler's plan of Pentagoet ruins, from "Fort Pentagoet and the French Occupation of Castine," 1893.

historical documentation, and his own "careful survey" of the visible remains of the fort, to prepare and publish a "Plan of Fort Pentagoet 1670–1907," a detail of which appears as Figure 3.8. Although his plan greatly exaggerates the size of the fort, it is a valuable summary of previous excavations.[55]

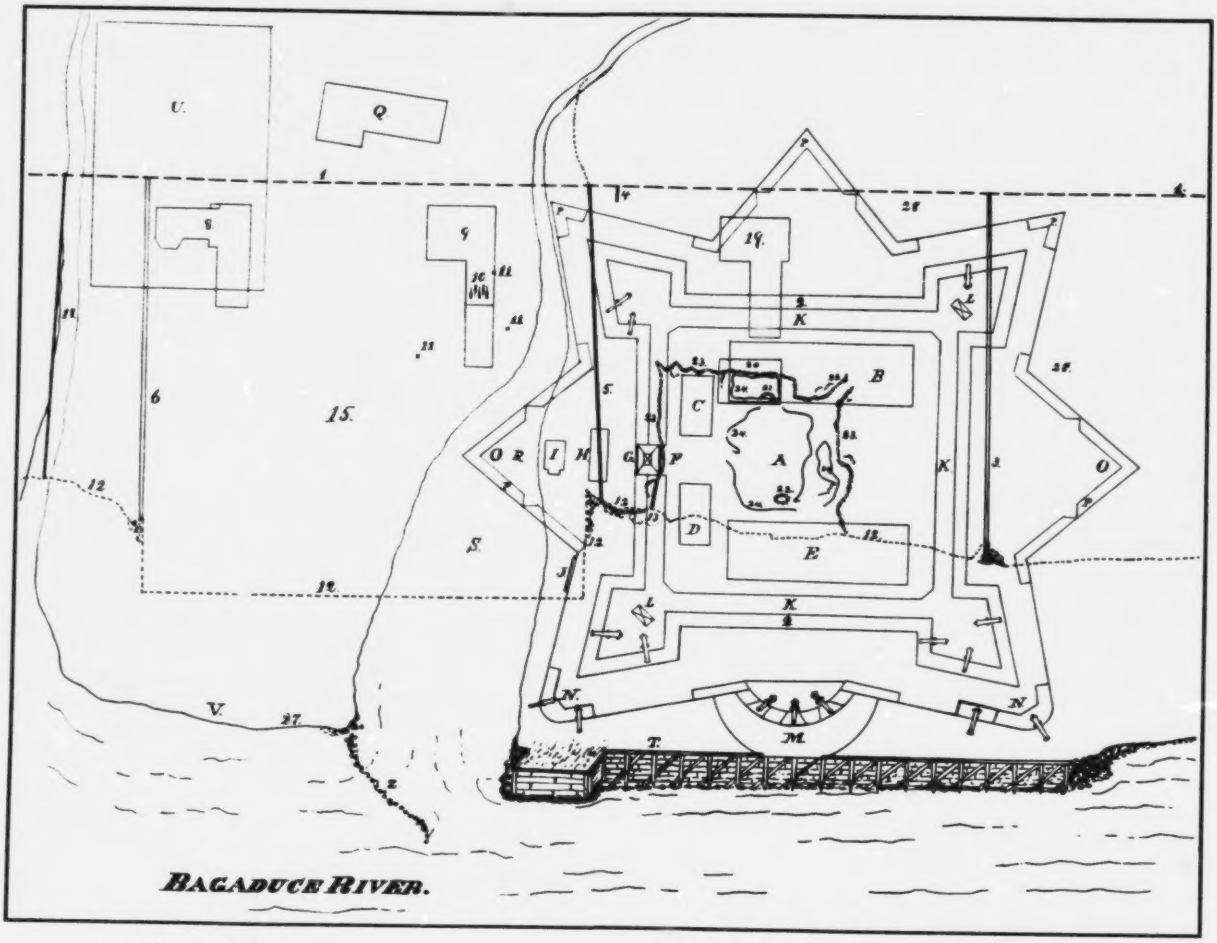
Noyes also prepared an elaborate sign, still standing on the site, whose inscription gives a fanciful version of Fort Pentagoet's history (Figure 3.9).[56] Besides greatly overextending its occupation sequence, the lengthy text presents Pentagoet as "the first permanent settlement in New England and its actual political and commercial beginnings... one of the largest and most formidable fortifications in the New World." Such puffery only obscures the many truly significant credentials of this Acadian stronghold, whose actual dossier is far more interesting than that which is conjured up by such fantasies of grandure. A diligent and conscientious researcher, Noyes must be credited for maintaining local interest in Pentagoet; yet his contributions contain major inaccuracies and continue to perpetuate misinformation about the site.

Warren K. Moorehead 1915

In 1915 the notorious "Professor" Warren King Moorehead, an archaeologist of dubious ability and ruthless technique, was attracted to the site by its eroding shell heaps, the middens into which Fort Pentagoet intrudes. Although representing the prestigious Peabody Foundation of Philips Academy, Andover, he was apparently denied permission to dig within the compound itself. He and his crew "excavated... so far as we could operate without damage to the walls or property," and then retreated to a more extensive shell midden across the harbor in Brooksville.[57] Moorehead concluded correctly that the Pentagoet shell midden had been extensively disturbed, and declined to make any comment on its antiquity. Artifacts recovered by the expedition included "hand-made nails, some knife blades, a slender dagger, gun flints and other European objects."[58]

Latter Day Pothunters

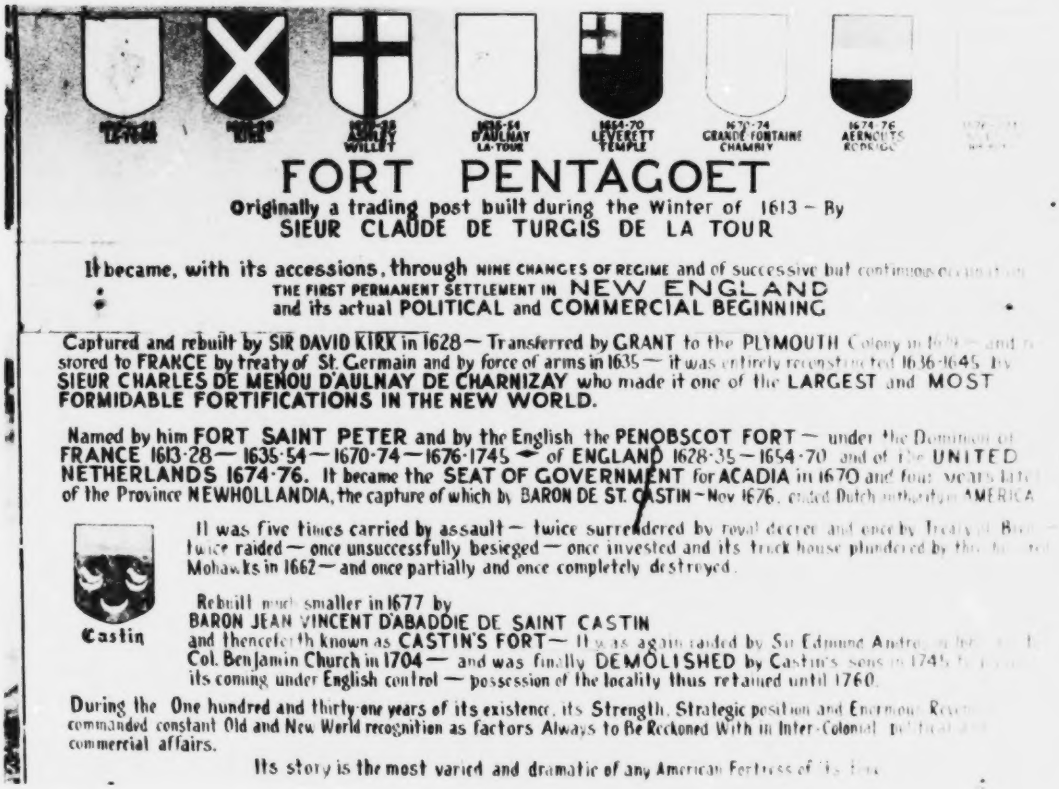
Although numerous excavations were undertaken on the site of Fort Pentagoet, for the most part they did little damage to the structural remains of the fort and the early occupation surfaces. Excavating Pentagoet required great persistence, as the accumulation of fill and rubble in the 19th and early 20th century exceeded 75 cm in most areas. In some cases it would appear that excavation ceased upon reaching the level of slate demolition—hence Noyes' description of the paved parade as consisting of "irregular slate stones," rather than the rounded cobblestones as exposed in the 1981–1983 excavations.[59] Until the granite sea wall was constructed in 1984, the easiest access to the site was along the ero-



Location of 1670 Features
(inferred from plans of 1670 and 1671)
A. Parade
B. Magazine
C. Guard House
D. Three-room House
E. Barracks
F. Entrance
G. Chapel
H. Redoubt protecting the gate
I. Bakehouse and shed
J. Gate of the outer works
K. Terrace
L. Two Lookouts
M. The Water Batter
N. Two Platforms
O. Outer Works
P. Small parapets at re-entrant and side angles
Q. Cattle shed
R. Creek channel
S. Cove for small boats
T. Bulkhead with fraises
U. Garden, with fruit trees
Z. Breakwater of wooden piles

Features visible in 1907
(archaeological remains in italics)
1. Southern boundary of Perkins Street
2. [not identified]
3. Fence between Collins and Boland lots
4. Line post between Collins and Brophy lots
5. Outlet of brook, former creek
6. Fence separating Brophy and Wilson lots.
9. Residence of Mrs. James Brophy
10. *Skeletons of "five Dutch seamen" found in excavation of cellar, 1863*
11. *Graves of "three French Soldiers" found in 1863 excavations*
12. Shore line, high water mark, 1907
13. *Shell heap*
15. Property of Brophy families
18. Brook, now covered
19. Collins House [later remodeled into church]
20. Barn, covering cellar of Magazine
21. *Cellar of magazine with semi-circular well*
22. *Oval well* "of Baron de Saint Castin's Fort"
23. *Shaded lines "indicate outlines of Castin's Fort"* [Compound of Fort Pentagoet]
24. *Limits of remains exposed in 1907 including the cellar and parade*

Figure 3.8 "Plan of Fort Pentagoet, 1670–1907," after Charles W. Noyes, 1907. The key below is abstracted from Noyes' original interpretation.



FORT PENTAGOET
Originally a trading post built during the Winter of 1613 – By
SIEUR CLAUDE DE TURGIS DE LA TOUR

It became, with its accessions, through NINE CHANGES OF REGIME and of successive but continuous occupation
THE FIRST PERMANENT SETTLEMENT IN NEW ENGLAND
and its actual POLITICAL and COMMERCIAL BEGINNING

Captured and rebuilt by SIR DAVID KIRK in 1628 — Transferred by GRANT to the PLYMOUTH Colony in [illegible] — and restored to FRANCE by treaty of St. Germain and by force of arms in 1635 — it was entirely reconstructed 1636-1645 by SIEUR CHARLES DE MENOU D'AULNAY DE CHARNIZAY who made it one of the LARGEST and MOST FORMIDABLE FORTIFICATIONS IN THE NEW WORLD.

Named by him FORT SAINT PETER and by the English the PENOBSCOT FORT — under the Dominion of FRANCE 1613-28 — 1635-54 — 1670-74 — 1676-1745 — of ENGLAND 1628-35 — 1654-70 and of the UNITED NETHERLANDS 1674-76. It became the SEAT OF GOVERNMENT for ACADIA in 1670 and four years later of the Province NEWHOLLANDIA, the capture of which by BARON DE ST. CASTIN – Nov 1676, ended Dutch authority in AMERICA

It was five times carried by assault — twice surrendered by royal decree and once by Treaty of Breda — twice raided — once unsuccessfully besieged — once invested and its truck house plundered by the [illegible] Mohawks in 1662 — and once partially and once completely destroyed.

Rebuilt much smaller in 1677 by
BARON JEAN VINCENT D'ABADDIE DE SAINT CASTIN
and thenceforth known as CASTIN'S FORT — It was again raided by Sir Edmund Andros in [illegible] Col. Benjamin Church in 1704 — and was finally DEMOLISHED by Castin's sons in 1745 [illegible] its coming under English control — possession of the locality thus retained until 1760.

During the One hundred and thirty-one years of its existence, its Strength, Strategic position and Enormous Rev[illegible] commanded constant Old and New World recognition as factors Always to Be Reckoned With in Inter-Colonial political and commercial affairs.

Its story is the most varied and dramatic of any American Fortress of its time

Figure 3.9 Historical marker at Pentagoet composed by Charles W. Noyes in 1910—the largest of several such signs within the town of Castine. Except for the top of the oval well, which was "reconstructed" in the late 19th century, the church lawn today remains featureless, and without this marker the average passerby would not suspect that the remains of an important 17th century habitation lie buried here. Unfortunately the text is rife with errors and greatly exaggerates the duration of the Fort's occupation and distorts its political and economic significance.

sional scarp, the prime area of interest for W. K. Moorehead and others who were attracted to eroding shell middens. Some residents maintained an annual spring rite of searching the shore in front of the fort for items washed out by winter storms and of poking and prodding the bank in search of "treasure."

Discoveries and Preliminary Tests 1980–1981

In June of 1980, when the site was reexamined by an archaeology team from the University of Maine, there was little reason to hope that significant remains of Pentagoet survived.[60] What had not fallen victim to the relentless processes of decay and the constant battering of the sea, might very well have been picked over and mixed beyond recognition by construction, occupation, and pothunting. Yet the discovery of a slate wall eroding from the western edge of the bank raised hopes that substantial architectural features still remained. Nearby, a thin layer of charcoal beneath a pile of slate rubble indicated that portions of floors remained intact. On the eroding bank, the team collected a few clay tobacco pipes stem fragments with large bore diameters—7/64 in. and 8/64 in.—which indicated that the foundation remains were likely to be of 17th-century date. They also recognized several fragments of green glazed ceramics found on the beach as French products, generally similar to specimens found at the Fortress of Louisbourg in Nova Scotia. Therefore the remains were almost certainly of a 17th-century Acadian site, one of the first to be identified in Maine.

Encouraged by these indications, the Maine Historic Preservation Commission sponsored six weeks of testing in the summer of 1981 to determine how much of the fort still remained. These tests ultimately revealed that fully 99% of the inner compound, the principal living area, had escaped erosion. In spite of all the previous construction, looting, and amateur excavation, disturbance of the site proved to be largely superficial, and areas of major damage were localized about the Magazine. Fortunately, the majority of the early fort survived substantially intact.

Notes to Chapter 3: Transformations and First Impressions of the Ruins

1 John Crowne, "A Memorial Concerning the English Title to Penobscot, January 4, 1697/98," *DHSM*, vol. 10, p. 29.

2 "Plea and Answer of Peter Rodrigo & others, May 17, 1675," *DHSM*, vol. 6, p. 54.

3 Ibid., p. 63. While the theft of provisions from the settlers was inexcusable, surely the salvage of the ironwork from Pentagoet must have been no surprise to the Dutch, as it was well within the loose bounds of frontier ethics. The authors have observed first hand the propensity of fishermen to scavenge raw materials from abandoned properties, witnessing the vandalism of the Coast Guard Station at Damariscove Island while doing archaeological research there in 1979 and 1980. Now, as in the 17th century, any abandoned or damaged property is fair game for salvage or recycling in a setting where man-made resources are scarce and expensive to transport.

4 John Crowne, "A Memorial Concerning the English Title to Penobscot, January 4, 1697/98," *DHSM*, vol. 10, p. 29.

5 "Brunet to — [Frontenac?], Le 13^{e} Janvier, 1676," Public Archives of Canada, vol. 106 (864).

6 Emerson W. Baker, "Trouble to the Eastward: The Failure of Anglo-Indian Relations in Early Maine," Ph.D. dissertation, The College of William and Mary, (1986), pp. 224, 246, 249, 253, 268.

7 Alaric Faulkner, Gretchen Faulkner and Joern Steinort, "The Lower Bagaduce Historic Sites Survey, 1984–1985," ms. report, on file, Maine Historic Preservation Commission, (Augusta, 1985).

8 Gargas, "General Census of Acadia by Gargas, 1687-1688," in William Morse, ed., *Acadiensia Nova*, Bernard Quaritch, (London, 1935), vol. 1, pp. 139-155. This count apparently includes Saint-Castin's wife, who, although she was an Indian, naturally was listed in the tally of Europeans.

9 Pasquine, "Carte du Havre du Paintagouet ," (c. 1688), Bibliothèque National, Paris, Port 135, Div. 3, Pièce 5. "Carte de Pentaguet," (c. 1690), Bibliothèque National, Paris, Port 135, Div. 3, Pièce 3.

10 "A Journal of ye Travails of Major John Livingstone from Annapolis Royall in Nova Scotia to Quebeck in Canada, from thence to Albany and soe to Boston, October 15 1710 to February 23, 1710/11," *CSP Colonial Series*, vol. 25, His Majesty's Stationery Office, (London, 1924), pp. 371–374.

11 "Colonel Thomas Westbrook's expedition to Penobscot River 1722–23," *Bangor Historical Magazine* vol. 5, no. 6, (1889), pp. 101–105. "Joseph Debadis de Saint-Castin to Lieutenant Governor Wm Dummer, July 23, 1725," *DHSM*, vol. 10, pp. 313–314.

12 "Journal of the Voyage of Governor Thomas Pownall from Boston to Penobscot River, May, 1759," *MaineHS*, vol. 5, p. 385.

13 Thomas Pownall, *A Topographical Description of the Dominions of the United States of America*, University of Pittsburgh Press, (Pittsburgh, 1949), p. 71.

14 Stephen Decatur Gray, "Reminiscenses," in Stanley D. Gray, "The Gray Family of Hancock Co.," (1903), typescript notes on file, Brooksville Historical Society, and in the possession of Philip Perkins and Virginia Koffman, Castine, Maine, p. 1,

15 Jacob Bailey, "The First English Settlements in That Part of Acadia Now Eastern Maine," *Maine Historical Magazine*, vol. 8, Joseph W. Porter (Bangor, 1893), pp. 1–12. If the date given for William's birth, Nov. 16, 1758, is correct, he surely was not actually born at Pentagoet, as the site could not have been reinhabited prior to Governor Pownal's visit in 1759.

16 Hosea B. Wardwell "Early Settlement of the Town of Penobscot Maine,"*Bangor Historical Magazine*, vol. 5, no. 6, (1889), pp. 101–105.

17 Anonymous, "A Leaf From the Life of an Old Man," unidentified newspaper clipping interviewing Reuben Gray, aged 96, c. 1858, Brooksville Historical Society records no. 60. Stephen Decatur Gray, "Reminiscenses," p. 1.

18 The room is identified as an outbuilding because there seems to have been no provision for a hearth, although the original French hearth survives beneath the 1760s occupational surface. Details on the phases of remodelling of Structure 2 appear in the following chapter.

19 The assemblage includes white saltglazed stoneware, characteristic of the 1750s, but no creamware, an English ceramic which is ubiquitous on English sites after c. 1765.

20 *Bangor Historical Magazine* vol. 8, (1891), p. 8. Shortly thereafter the Grays "left and settled in the vicinity of what is now Walker's Pond at the head of the Bagaduce River." Stephen Decatur Gray, "Reminiscenses," p. 1.

21 Joseph L. Stevens, Jr. "Reminiscences of William Hutchins, Aged 90, August, 1855," ms. on file, Castine Scientific Society, Wilson Museum, Castine, Maine.

22 Thomas C. Hubka, *Big House, Little House, Back House, Barn: The Connected Farm Buildings of New England*, University of New England Press, (Hanover, New Hampshire, 1984). The structure is also illustrated in Ellenore W. Doudiet, *Majabigwaduce: Castine, Penobscot and Brooksville*, Castine Scientific Society, (Castine, Maine 1978), p. 78.

23 Charles W. Noyes, *Plan of Fort Pentagoet, 1670–1907*, (1907), on file, Historical Archaeology Laboratory, Coburn Hall 31, University of Maine, Orono, Maine. See also, George N. Colby, "Castine Village," *Atlas of Hancock County Maine*, S. F. Colby & Co., (Ellsworth, Maine, 1881), p. 43.

24 Philip Perkins, Castine, Maine, pers. comm., October 19, 1983. The present house was built by Benjamin Coombs c. 1850 and given to George Webb, his adopted son, who sold it to the Collinses c. 1890. The Collins family sold the property to James Norton, a stable keeper who in turn deeded the land to the church in 1920. Verification at the Hancock County Courthouse in Ellsworth, Maine.

25 George A. Wheeler, *Castine Past and Present*, Rockwell and Churchill Press, (Boston, 1896), p. 81.

26 The remodelling fill within the Magazine was encountered in the University of Maine excavations of 1981.

27 Photographs in possession of Our Lady of Holy Hope, Perkins Street, Castine, Maine. See also Allan Forbes and Paul F. Cadman, *France and New England*, vol. 1, Walton Advertising and Printing Co., (Boston, 1925), p. 75.

28 *Bangor Daily News*, August 22, 1921. Louis S. Walsh, "An Old Mission Site Regained," *The Maine Catholic Historical Magazine*, (Portland, May, 1928), p. 209.

29 A large panel "Fort Pentagoet 1614–1745" supported by

four huge posts stood on the site in 1923, and had evidently been painted several years before. See Allan Forbes and Paul F. Cadman, *France and New England*, p. 75. The post holes penetrated through the floors of Structure 2, the Barracks/Workshop.

30 Mary Hooper, "Fort Pentagoet and Castine: History and Excavation," 1980, (ms. on file, Historical Archaeology Laboratory, University of Maine, Orono, Maine).

31 George A. Wheeler, *Castine Past and Present*, Rockwell and Churchill Press, (Boston, 1896), p. 82. A miscellany of items attributed to the fort are still in the collections of the Wilson Museum in Castine, and include a few iron tools and axes, an "ice creeper," and two wooden pilings from the palisade line.

32 *Ellsworth American*, September 30, 1880.

33 John E. Godfrey, "Noted Localities: Pentagöet," Godfrey Papers, Special Collections, Fogler Library, University of Maine, (n.d.), pp. 90–92.

34 George A. Wheeler, *History of Castine, Penobscot and Brooksville*, Burr and Robinson, (Bangor, 1875), p. 156.

35 George A. Wheeler, *Castine Past and Present*, p. 82.

36 Charles W. Noyes, *Plan of Fort Pentagoet 1670–1907.*

37 A faint cross appears in this area on Grandfontaine's plan of Fort Pentagoet, and may represent this cemetery. Alternatively, this may be nothing more than a stray pencil mark. The original, however, when examined by the authors in Paris, exhibited a possible erasure—perhaps a security precaution taken to protect the sanctity of the dead. See Figure 4.3.

38 George A. Wheeler, *Castine Past and Present*, pp. 81–82. Allan Forbes and Paul F. Cadman, *France and New England*, pp. 76-78.

39 In 1984 a simple Jesuit seal bearing the inscription "IHS" (Jesus, savior of mankind), was found on the same site as the plaque.

40 Ivan Brooks, "The Baron De St. Castin," (1883), microfiche, *Pre-1900 Canadiana*, Unit 1, CIHM no. 00290, p. 369.

41 *Castine Monthly News*, April 1872, and *Frank Lesley's Illustrated Newspaper*, June 16, 1888.

42 Two round spruce pales from the palisade survive in the collections of the Wilson Museum in Castine, while two riven oak specimens are in the hands of the Ralph Brown family, who own the "Brophy Cottage" immediately to the west of the fort. A cane made from one of these pales was shown to us by a Mr. Thomas Adams of Lincoln, Massachusetts, a former resident of Castine.

43 *Ellsworth American*, (September 30, 1880). Charles W. Noyes, *Plan of Fort Pentagoet 1670–1907*, (1907). George A. Wheeler, "Fort Pentagoet and the French Occupation of Castine," *MaineHS*, 2nd series, vol. 4, Plan 3.

44 Anonymous, "Castine, its History and its Relics: Field Day of the Maine Historical Society," clipping from an unidentified Portland, Maine newspaper, c. September 25, 1880, (on file, Castine Scientific Society, Wilson Museum, Castine, Maine).

45 *Castine Visitor*, August 24, 1882.

46 Wall M, thought to have been constructed late in Pentagoet III as part of a structure which was not completed before the fort was destroyed.

47 Foundation remains often appear to be smaller than the buildings they once supported. However, had the ruins been compared in size to the house and barn standing next to them, the configuration of Fort Pentagoet might have been more readily comprehended.

48 George A. Wheeler, *History of Castine, Penobscot and Brooksville*, pp. 186–187.

49 George A. Wheeler, "Report on the Present Condition of the Fortifications at Castine," *The Portland Transcript*, Oct. 2, 1880.

50 John E. Godfrey, "Noted Localities: Pentagöet," Godfrey Papers, Special Collections, Fogler Library, University of Maine, pp. 90–92.

51 Interestingly, the builder's trench for this supposed drain was not detected in the east-west stratigraphic trench which extended across the entire site.

52 George A. Wheeler, "Fort Pentagoet and the French Occupation of Castine," *MaineHS*, 2nd series, vol. 4, pp. 119–121. In the aftermath of the Collins excavation, substantial quantities of Pentagoet's slate were re-used for construction next door. To the east of the site the "Agoncy Cottage," now known as Holiday House, was built in 1893 for Col. A. K. Bolan of New York according to George A. Wheeler, *Castine Past and Present*, pp. 84–85. While the foundation of the main building was made from field stone, the underpinnings of the two oceanside porches appear to have been constructed from Pentagoet slate.

53 "Charles W. Noyes to Henry S. Burrage, March 25, 1910," Burrage Collection, Maine Historical Society, Portland, Maine.

54 Ellenore W. Doudiet, *Majabigwaduce: Castine, Penobscot and Brooksville*, Castine Scientific Society, (Castine, Maine, 1978), p. 79.

55 Noyes' plan was ultimately developed into an aerial oblique reconstruction: "Fort Pentagoet, 1670," *The Industrial Journal*, (Bangor, July, 1915), p. 9.

56 Charles W. Noyes to Henry S. Burrage, May 21, 1910, Burrage Collection, Maine Historical Society, Portland, Maine.

57 Anonymous, "Historical Field days at Castine," *The Industrial Journal*, (Bangor, July, 1915), pp. 10–11.

58 Warren K. Moorehead, *A Report on the Archaeology of Maine*, Andover Press, (Andover, Mass., 1922), pp. 166–167. Although the collection was left with the library in Castine, its present whereabouts is unknown.

59 Charles W. Noyes, *Plan of Fort Pentagoet 1670–1907.*

60 This examination was conducted by Alaric Faulkner and Gretchen Fearon (Faulkner) of the University of Maine, Robert L. Bradley of the Maine Historic Preservation Commission, and Mary Hooper, author of a student paper assessing the archaeological potential of the site.

Chapter 4

Anatomy of the Fort

As in the approach of Wheeler and Noyes before, the present investigation focuses first on defining the limits of the fort, and understanding its organization. Today, however, new sources of information, coupled with modern archaeological techniques, permit far more detailed and reliable results. While antiquarians amassed an admirable collection of archival materials pertaining to Pentagoet, current research reveals several new sources. In many cases, we have been able to examine photocopies of the original documents and have not been dependent on imperfect transcriptions. Excavations over the last three decades have exposed a number of related sites, providing comparable structural remains and reference collections for interpreting Pentagoet's layout and its vast assemblage of artifacts. In addition, the recent development of ground penetrating radar has provided us with a tool for guiding excavation and interpreting areas which remain unexcavated. Above all, modern excavation strategy permits us to distinguish individual occupations, preserve the architectural features and refuse middens in proper temporal context, and recover subtle clues which tell of the daily operation of the fort.

Four seasons of excavation at Pentagoet have revealed the essential elements of the fort's plan (Figure 4.1). Several of these are now known in detail, and include two major building complexes, the entranceway, and parts of numerous other structures and features. These excavated underpinnings give new meaning to the plans and descriptions of Pentagoet produced at the behest of Talon, Grandfontaine, and others in the early 1670s.

Reconciling the archaeological and historical plans, however, is not simply a matter of corroboration, for these contemporary descriptions appear to be at odds with the excavated remains. The differences were quite apparent to a newspaper correspondent who visited the rubble of Fort Pentagoet in 1880 and mused about its layout:

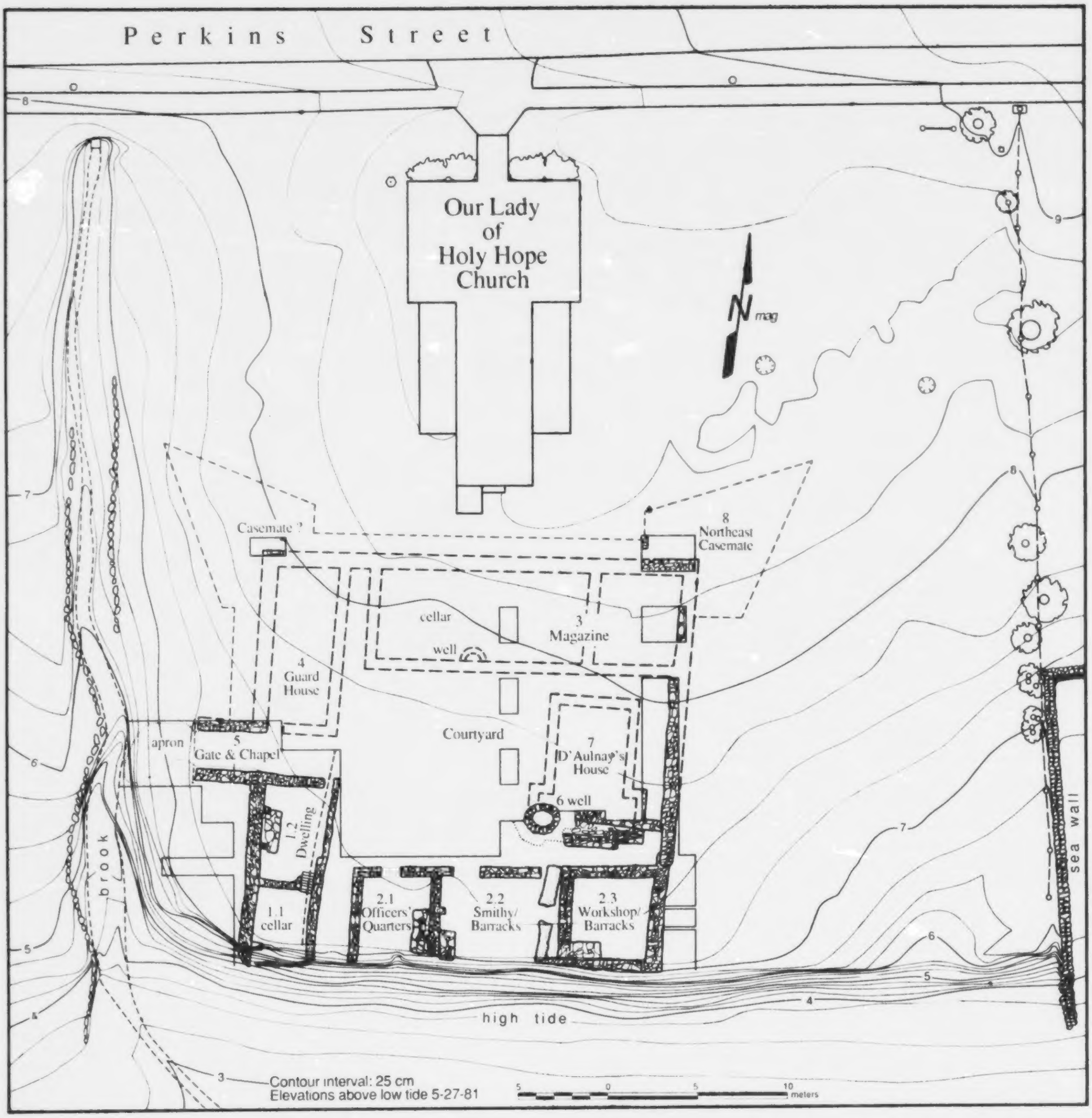
> Is this the old fort of the Plymouth Colony of 1626 [*sic*]? Was it the stronghold of D'Aulney [sic], in which he made defiance to La Tour and all his enemies?... Who shall say?... It is certainly not the fort surrendered to the French in 1670. That had four bastions and contained a guard house, a house of 3 rooms, a chapel, a magazine and another building, all of which could not have been crowded into the contracted dimensions of this building.[1]

Like Wheeler and Noyes, the visitor envisioned a large, sprawling fort, and then expressed disappointment that the observable remains were so small. Such early impressions of Pentagoet relied heavily on the few "primary" descriptions, which have survived in the various archives of France and Great Britain, rather than on the concrete evidence immediately before them. Until the 20th century, prevailing opinions held either that most of the fort had been washed away, or that it must have been situated elsewhere after all. Fortunately, the present excavations show that neither of these preconceptions was correct.

Conflicting Historical Templates

The interpretation of the archaeological footprint and the distribution of artifacts within it begins, therefore, with an analysis of the 17th-century accounts. The surviving four documents that describe Pentagoet were written either at the turnover of the fort to the French in 1670 or shortly thereafter. Two are inventories covering the fort's structures, architecture, defensive works and ordnance. The remaining two are plans, one of which emphasizes structures within and around the fort while the other depicts the defensive works. These records differ considerably from each other as well as from the archaeological remains, and so it is important to understand why each one was made, for whom it was intended, and what it was expected to represent—or, in some cases, misrepresent.

Both inventories, which were written on the occasion of the transfer of Pentagoet from English to French control on August 5th and 6th, 1670, are reproduced in Appendix A. The first, the "Act of Surrender," was prepared by the French party led by the new Acadian governor, Hector d'Andigné de Grandfontaine, at the behest of the English. The account was made to accommodate the English Governor of Acadia, Sir Thomas Temple, who claimed a considerable investment in the area and wished to be reimbursed by the English government. This "Act of Surrender" was the first account com-


Perkins Street
Our Lady of Holy Hope Church
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Casemate ?
8 Northeast Casemate
cellar
well
3 Magazine
4 Guard House
apron
5 Gate & Chapel
Courtyard
7 D'Aulnay's House
6 well
1.2 Dwelling
1.1 cellar
2.1 Officers' Quarters
2.2 Smithy/ Barracks
2.3 Workshop/ Barracks
brook
sea wall
high tide
Contour interval: 25 cm
Elevations above low tide 5-27-81
5 0 5 10 meters

Figure 4.1 University of Maine excavations at Fort Pentagoet, 1981–1984. Except for Structures 7 and 8, which are known only from archaeological evidence, all buildings have been named according to descriptions of the fort made in the 1670 and 1671. Dotted lines indicate features and structures known from contemporary plans and confirmed by ground-penetrating radar or test excavation.

posed, and there is little reason to suspect its basic reliability. But the surviving version is a fourth generation copy, and has had ample opportunity for minor corruption.[2]

The second inventory, "The State of the Fort," was dated the following day, and was prepared for Talon, the Intendant of New France, to forward to Louis XIV as an account of property received. It appears to have been written from the same notes as the "Act of Surrender," but shows some sub-

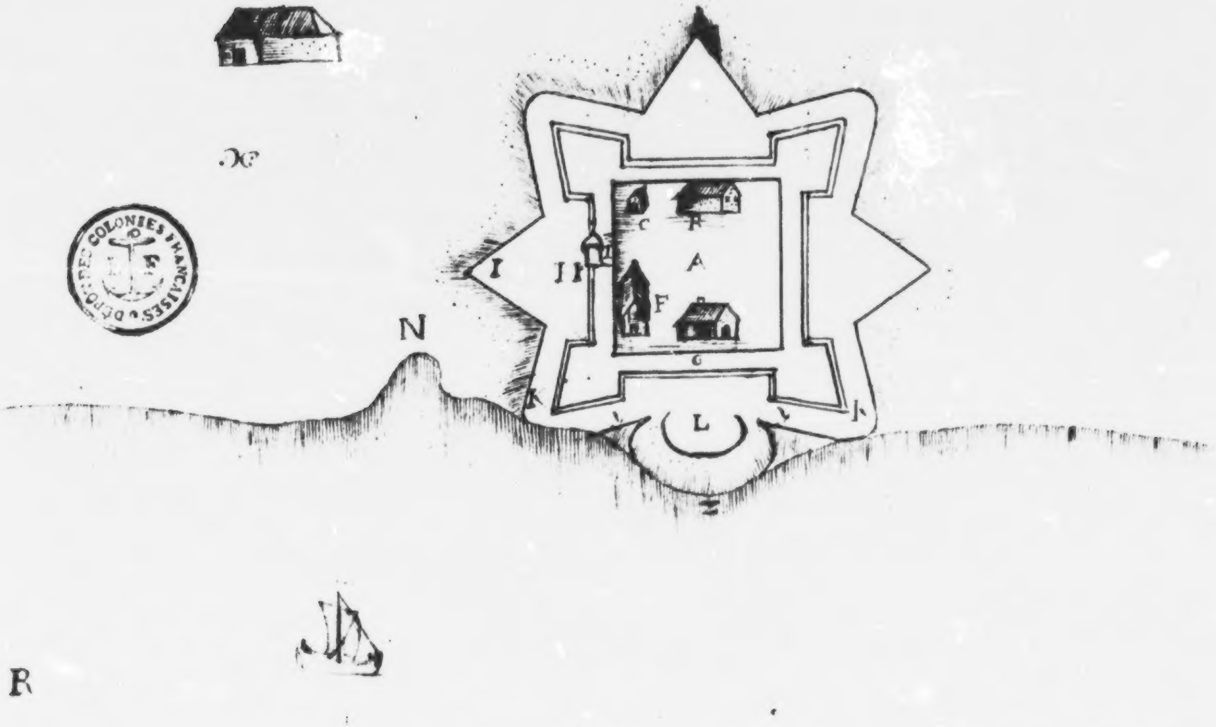
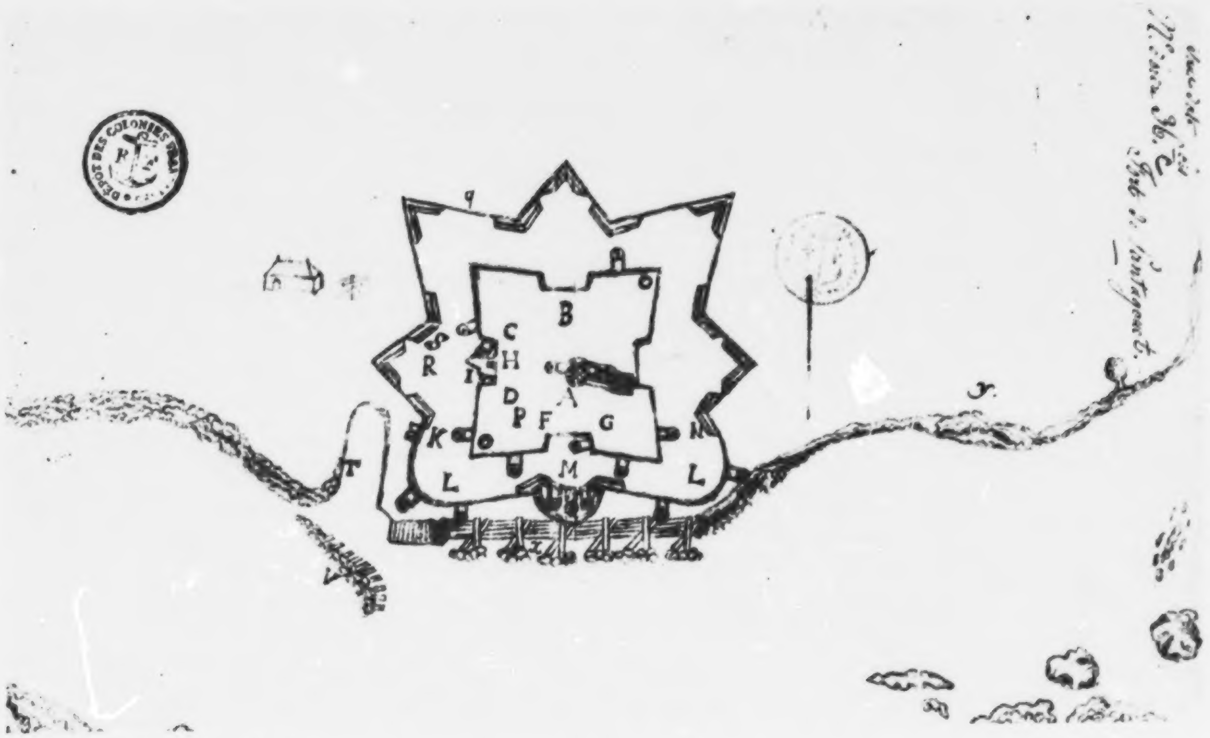


Figure 4.2 Detail of a plan of Pentagoet sent to Colbert, minister to Louis XIV, by M. de Talon, Intendant of New France, on November 10, 1670. No key to this map survives but it is clear from accompanying descriptions that the original lettering identifies: A, the parade ground; B, a two-story magazine with a cellar; C, a guard house; D, a chapel over the fort's entrance; H, a small redoubt in front of the fort; F, a dwelling; G, a house for workmen and soldiers (formerly a smithy/workshop); X, a barn for livestock. Service Outre-Mer, Archives Nationales, Paris.

stantial changes in building dimensions and other details relating to the size and condition of the fort. These changes do not consistently increase or decrease the dimensions of the fort, and may represent some refinements to the first reckoning. The account, however, does play down the fort's state of disrepair.

The two plans show considerable differences from each other. The first, labeled "Plan du fort de Pentagouet," is reproduced in Figure 4.2. It apparently accompanied a letter dated November 10, 1670 from Talon to Colbert, Louis XIV's foreign minister, but unfortunately it survives without its original key. Evidently this plan was not drafted at Pentagoet, but rather at Talon's headquarters in Québec, for the cartography is identical in style to another product of the Intendant's office.[3] The five buildings then standing within the compound are clearly shown, but appear to be formula representations, and are of no real value for detailed architectural interpretation. Talon himself never went to Pentagoet, and the cartography was probably redrafted by an aide, perhaps from some long vanished sketch drawn earlier at Pentagoet. Whatever the circumstances, the map is apparently at least one generation removed from the original rendering, and may have been the product of a draftsman who had never actually visited the site.

The second plan is the sketch of Pentagoet shown in Figure 4.3. It survives complete with an extensive key, transcribed in Appendix A.3, which describes the defensive works and the placement of ordnance. This pencil sketch is executed in a style identical to that of the map of Penobscot Bay signed by Grandfontaine, discussed in Chapter 2. The handwriting on both keys match, indicating that the governor himself was the author and that the rendering is an original drawing actually made on site. Significantly, it shows some improvements to the fort which suggest that it was sketched after 1670. Grandfontaine's original instructions required him to "pay great attention to putting himself promptly in a state of defense," and then "have instructive memoranda made of the condition of those places... including the fortifications, buildings, the number and quality of inhabitants, and the means and conveniences for their subsis-



[Fort Pentagoet—without date]

A The fort's plaza [parade ground] which is about twenty-five paces square

B The magazine which is about thirty paces long and fifteen broad

C The guard house which is about fifteen paces long and ten broad

D A living quarters on the other side of the guard house of comparable length and breadth, and above which two structures there is a small chapel and a bell which makes a roof for the entrance to the gate

F A Barracks for the officers 15 paces long and ten broad

G Another barracks of similar length and breadth for the workmen and soldiers

H The entrance to the fort

I The entrance to a small redoubt which is in front of the gate

K The gate of the envelope

L Two platforms each having two pieces which take eight pound balls

M Another platform with sod fraises [retaining walls] and embrasures where there are three pieces, two of eight [pounds] and one of three

N Some small parapets at the re-entrant angles and at the flanking angles of the envelope

O Two lookouts standing on the two angles of the bastions

P The steps for climbing onto the rampart

Q The palisades around the envelope

R An oven [forge?] and a shed in front of the gate

S A deep channel to keep water during hot weather

T A cove for keeping small boats

U Pilings to impede the flow of sea water

X A sea wall to impede the demolition of the earth supporting the envelope and platforms

Y An Eminence which commands the fort

Z The spring which is the best and most useful on the island

Figure 4.3 Pencil sketch of Pentagoet c. 1671, emphasizing its military defenses. This plan and its key are thought to be the work of Grandfontaine. English translation, A. Faulkner. Archives Nationales, Paris.

tence and trade."[4] It is quite likely, then, that both the plan of the fort and the map of Penobscot Bay accompanied a report sent by Grandfontaine to the King in 1671.[5]

Although it is an original drawing, the Grandfontaine plan of the fort clearly suffers from his biases and limited drafting ability. The outer defenses have been greatly exaggerated in proportion to the inner compound, and the curtain has been given a fictitious star–like configuration. Grandfontaine apparently wished to stress that the defenses were up-to-date, and provided adequate flanking protection from the several angles of the bastions and outer palisades. In spite of these gross distortions of form and proportion, his rendering indicates many features left out of the other descriptions, among which are gun emplacements, watch towers, steps for climbing the ramparts, a bake oven, and a bulkhead retaining the outer defenses. These details are especially important, for unlike the buildings of the inner compound, most of the defensive superstructure of Pentagoet has been leveled, and its footprint eradicated.

While buildings are indicated only by letter, the Grandfontaine plan does show the proper relative placement of structures within the compound, and their size and functions are given in the key. These notations show some evidence of the reorganization of the fort and the use of its buildings after 1670—renovations which are also apparent archaeologically, particularly in the excavation plan of Structure 2. Grandfontaine's sketch of the fort, therefore, faithfully enumerates the ingredients of the fort and their functions, but in scale, shape and proportion, it is even less reliable than the Talon plan.

The inherent biases of the contemporary plans and descriptions of the fort and the discrepancies between them become apparent when these accounts are compared side by side. Table 4.1 summarizes the documentation of the fort's key features, information which figures prominently in interpreting Pentagoet's archaeological remains. The general consensus on building form, placement and relative size was of great help in guiding archaeological progress, leaving no

TABLE 4.1
Comparison of Documented Structures Within the Compound of Fort Pentagoet

	"Act of Surrender"	"State of the Fort"	Grandfontaine Plan	Archaeological Data*
Date	August 5, 1670	August 6, 1670	c. 1671	1981-84
General		All houses of medium stone masonry needing a little repair		
Compound				
Dimensions				24.25 m × 23.50 m
Parade Ground			*A*, The Plaza [La Place]	
Dimensions			25 × 25 paces	(11.0 m × 11.0 m)
Bastions		Four well-flanked bastions		
Dimensions		16 feet tip to curtain		
Structure 1	House of same size as 4	House of same size as 4	House of same size as 4	
Construction	Hewn stone, shingle roof	Stone with three rooms		Coursed slate masonry
Dimensions	15 × 10 paces	12.5 × 6 paces	15 × 10 paces	4.64 m × 11.28 m
Comments				Two rooms and cellar
Structure 2	House of same size as 3	House of same size as 3	*F*, Officers' Quarters; *G*, Barracks	
Construction	Half roofed with shingles	Stone, not all roofed	Two distinct houses	Coursed slate masonry
Dimensions	36 × 10 paces	36 × 12 paces	Each house 15 × 10 paces	17.75 m × 5.87 m
Comments	Wanted much reparation	No cellar	*G* housed workmen and soldiers	Three bay complex later modified to 2 units
Structure 3	Magazine w/ small cellar & well	Magazine w/ half cellar & well	*B*, Magazine	
Construction	Two stories, stone, shingle roof	Two stories, stone, shingle roof		Coursed slate masonry
Dimensions	36 × 10 paces	36 × 12 paces	30 × 15 paces	(18.4 m × 5.9 m)
Comments	Old and wanted much reparation			Cellar excavated 1892
Structure 4	Guard House	Guard House	*C*, Guard House	
Construction	Hewn stone, shingle roof	Stone		Coursed slate masonry
Dimensions	15 × 10 paces	12.5 × 6 paces	15 × 10 paces	(10.2 m × 4.7 m)
Structure 5	Chapel with belfry above	Cupola w/ small belfry above	Chapel w/ small belfry above	
Construction	Daub, shingled roof, over 1 & 4	Timber-framed & daub		
Dimensions	6 × 4 paces	8 × 6 paces		(5.7 m × 2.9 m)
Comments	Above 1 & 4	Above entrance between 1 & 4	Above entrance between 1 & 4	
Pace Length**	0.56 m or 1.84 ft.	0.60m or 1.97 ft.	0.57 m or 1.87 ft.	

* All dimensions are measured to the exterior of building walls. Estimates are given in parentheses.
** A hypothetical unit calibrated by comparing archaeological measurements with documentary equivalents.

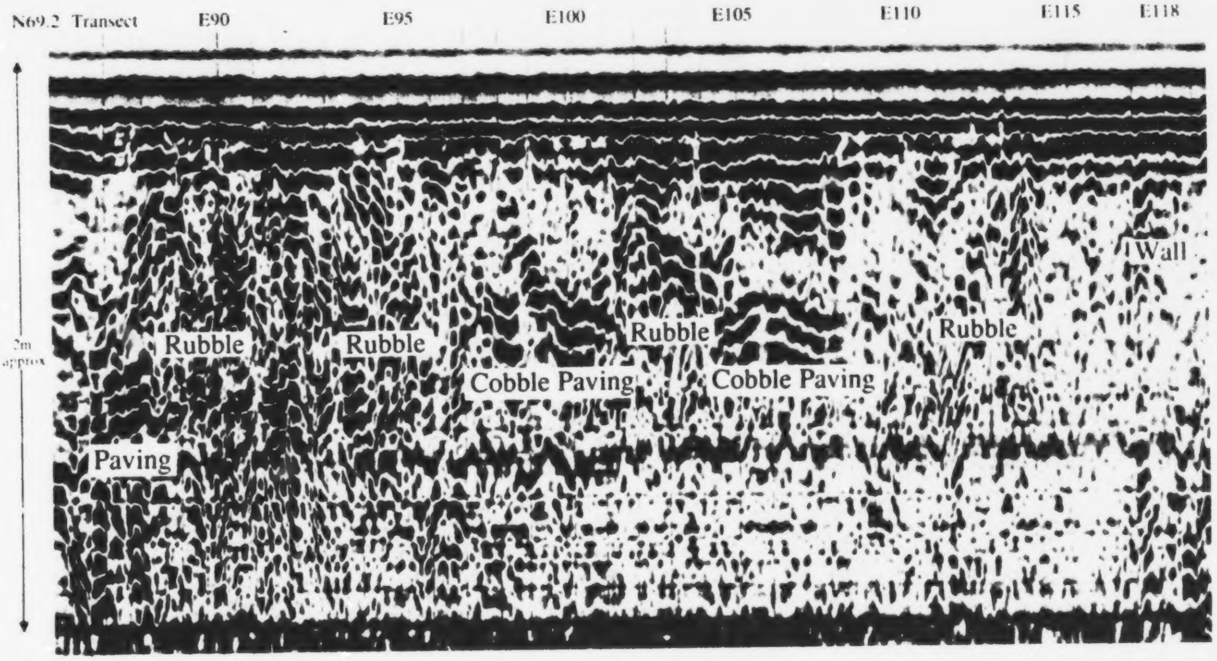


Figure 4.4 Sample ground-penetrating radar transect across Pentagoet. Such transects show distinctive echoes produced by stone rubble, cobblestone paving, water, and other subsurface intrusions and obstacles. Note that because of a vertical exaggeration of nearly 8 to 1, the relatively flat parade ground paving appears to be quite uneven.

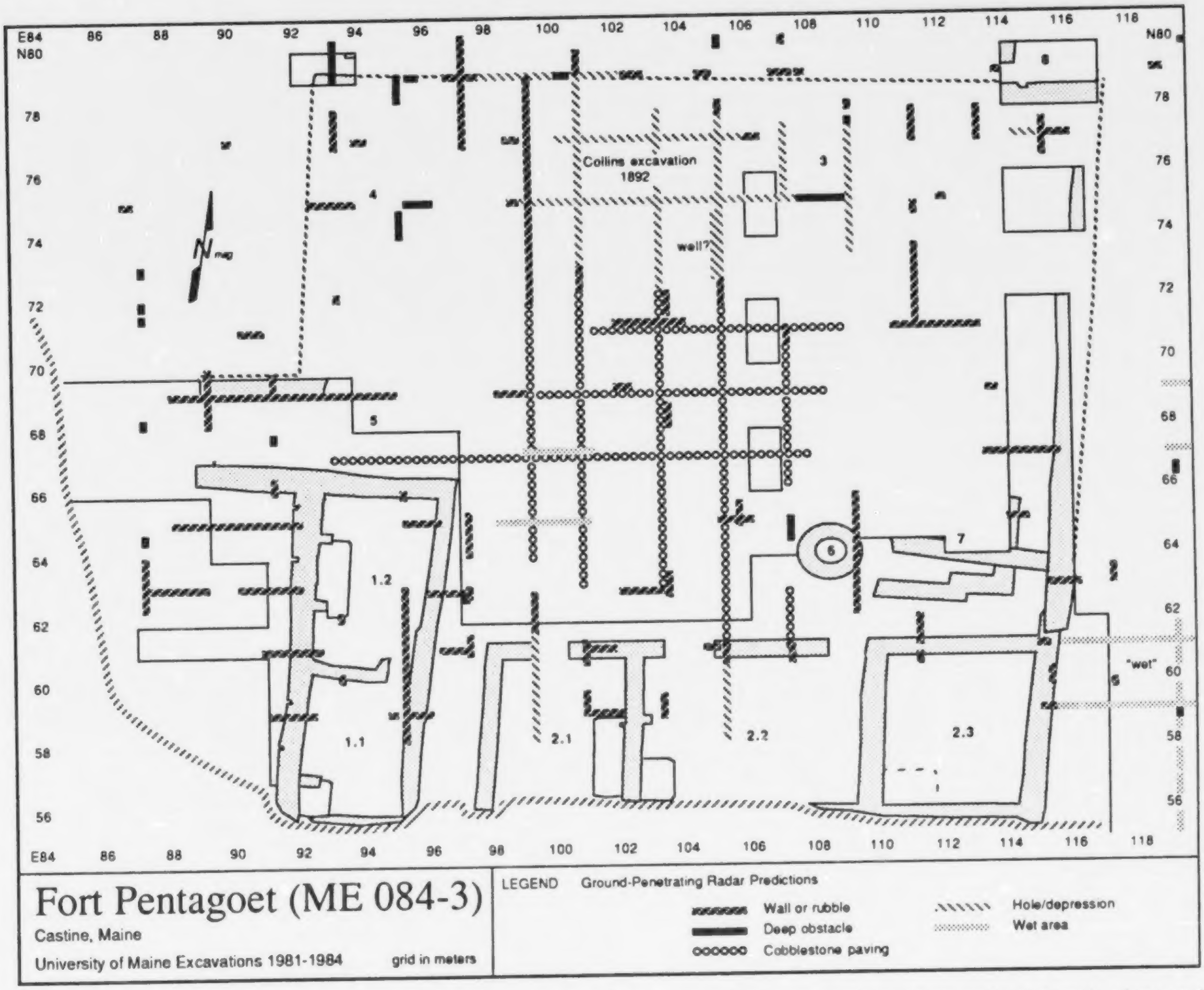
doubt that the forts described in the 1670s and excavated in the 1980s were one and the same. Descriptions of roof form, building materials, architecture of the Chapel and entranceway all seem to be consistent and reliable. Though there is general agreement on the details of construction of the structures within the compound, the recorded dimensions and relative building proportions are inconsistent and are significantly at odds with the excavated plan.

No matter how they are recalibrated, the 17th-century dimensions, which were recorded in paces, yield nonsense. The "pas ordinaire" in the "System de longeur du pied du roi," in use from 1668 to 1840, supposedly measured 81.21 cm.[6] Using this figure, the 17th-century descriptions predict buildings with linear dimensions averaging about 40% larger than their archaeological counterparts; reconstruction based on the official "pas" would cover nearly twice the area indicated by the excavated remains.[7] Although it has been a favorite approach taken by earlier historians of Pentagoet, merely translating the recorded dimensions into their modern equivalents does not produce a faithful representation of the site.[8]

The measurements so dutifully recorded in the 17th century, therefore, were surely guesswork. It is doubtful that the distances were ever paced off at all, as the only consistency in the measurements is their inflation. At best they were eye-ball guesses, or at worst they were intentionally inflated fiction. The result, in either case, was to present a fort which appeared to be a more valuable prize or a greater feat of construction than it really was. To understand the scale of Pentagoet, therefore, we must turn to the excavated plan itself.

Ground-Penetrating Radar Predictions

One of the most important techniques used to correlate the historical descriptions of the 1670s with the buried remains of the fort was a survey of the entire site using ground-penetrating radar.[9] This remote sensing technique generates a continuous readout, roughly analogous to a stratigraphic profile, which shows the relative ability of subsurface features and strata to reflect high frequency radio waves. Ground-penetrating radar scans can greatly expand the information gained from a few stratigraphic test trenches, and can often predict the nature and limits of archaeological sites having substantial architectural remains.[10] In this case, the radar scans were calibrated using profiles from the initial stratigraphic sections exposed at the site in 1981. Figure 4.4 shows the characteristic echoes produced in a typical section across Pentagoet's rubble and paving. Similar transects were taken along and across the entire site at two meter intervals.[11]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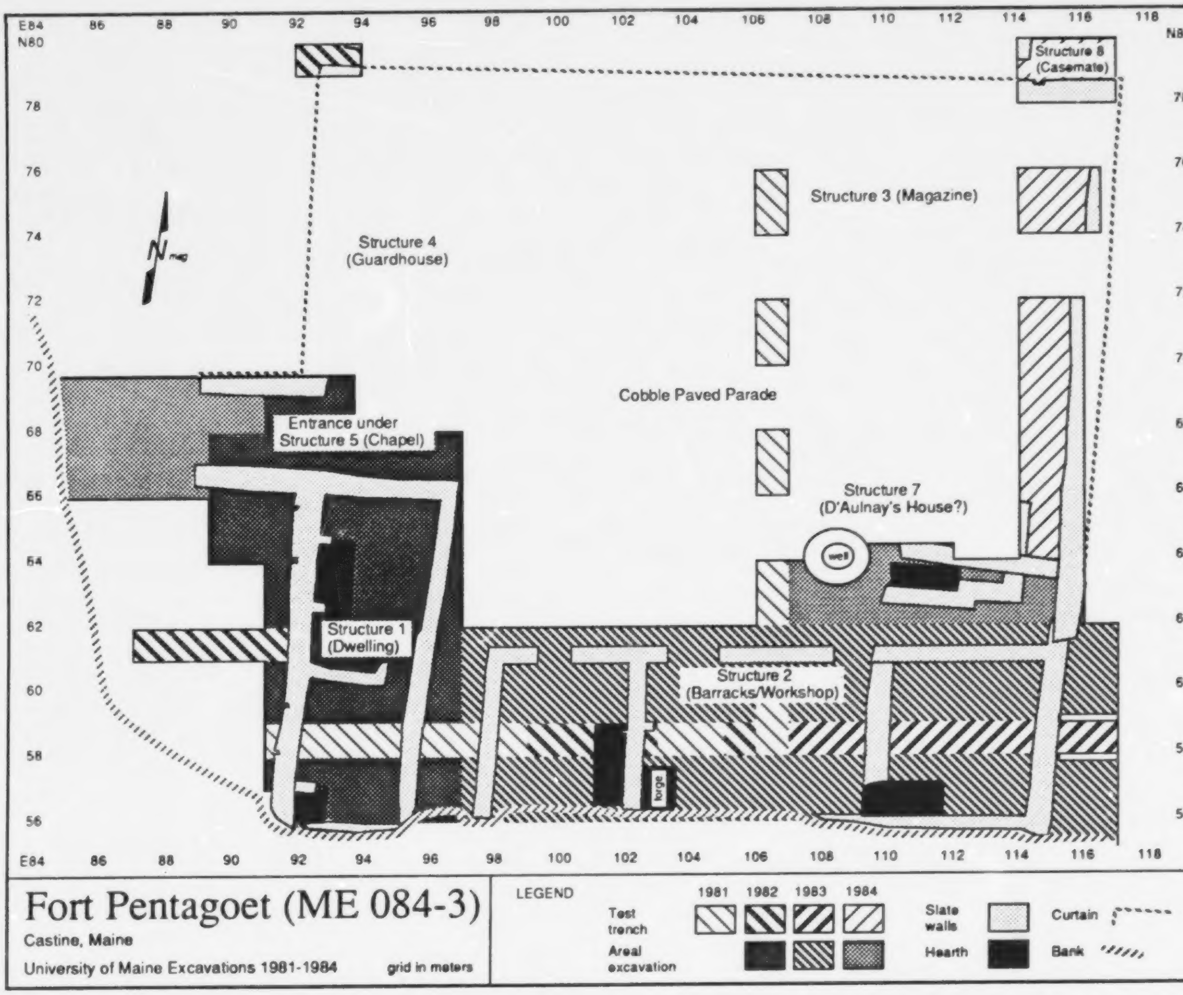
Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND Ground-Penetrating Radar Predictions
Wall or rubble
Deep obstacle
Cobblestone paving
Hole/depression
Wet area

Figure 4.5 Initial interpretation of ground-penetrating radar indications. Transects, taken at two meter intervals along and across the site, are shown superimposed upon the features subsequently excavated.

The initial radar predictions are superimposed on the final excavation plan in Figure 4.5. The results proved ambiguous in some respects, as the method did not discriminate between stone rubble and intact masonry, and so could not achieve the resolution possible, for example, on sites with wooden structures set upon stone footings. In particular, it was unable to distinguish individual rooms within building complexes. The predictions, however, are less haphazard than they might appear. In general, the technique did correctly represent what was there—concentrations of rubble displaced from their parent foundations. This, coupled with the limited resolution inherent in a two meter grid, accounts for some of the apparent incongruity between the radar predictions and the plan of features that were subsequently excavated. In spite of some shortcomings, the method did indicate the limits of the site, the extent of the cobblestone paving of the parade ground, and major modern intrusions into the site such as the 1892 Collins excavation of the cellar of the Magazine. While it was no substitute for actual excavation, ground-penetrating radar proved to be an extremely valuable aid in guiding its progress.[12]

Excavation Sequence

Over the four seasons of excavation at Pentagoet from 1981 to 1984, field crews exposed 281 m^2 of the fort, including nearly half of the living space within the curtains. Each major excavation area was first trenched, exposing it in profile so that the archaeological sequence could be reconciled with the historical chronology and ground-penetrating radar predictions. Only when the various episodes of con-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Structure 8 (Casemate)
Structure 3 (Magazine)
Structure 4 (Guardhouse)
Cobble Paved Parade
Entrance under Structure 5 (Chapel)
Structure 7 (D'Aulnay's House?)
well
Structure 1 (Dwelling)
Structure 2 (Barracks/Workshop)
forge
Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND
1981
1982
1983
1984
Test trench
Areal excavation
Slate walls
Hearth
Curtain
Bank

Figure 4.6 Sequence of excavation at Fort Pentagoet, showing stratigraphic trenches and areal exposure of key structures. While the test trenches cut through all occupations to sterile marine sediments, the areal exposures left Pentagoet's floors, paving, and other structural features intact.

struction, occupation, and demolition were reasonably well identified were the architectural features exposed laterally. Following the sequence shown in Figure 4.6, the team was usually able to expose broad areas stratum by stratum, knowing in advance their contextual significance. In these areal exposures, all intact architectural features of Pentagoet III were preserved; otherwise excavation continued to the earliest French occupation surface, Pentagoet I. Further notes on excavation and recording procedures appear in Appendix C.

1981

Initial test excavations in 1981 were sponsored by the Maine Historic Preservation Commission. These comprised an L-shaped trench one meter wide, the legs running along and across the southwest quadrant of the site. Because of time and budgetary constraints, the trench was segmented into alternate 1 m by 2 m pits; intervening segments were excavated only when the stratigraphic relationship between adjacent pits was ambiguous. The east-west leg ran along the eroding scarp parallel to the outer works, while the north-south leg bisected the fort.

The results of this first year's work were highly encouraging, for the trenches intersected three of the five structures then known from the historical plans, and exposed portions of the cobble paved "parade" or courtyard. Buildings identified included the Dwelling (Structure 1), the Barracks/Workshop (Structure 2) and the Magazine (Structure 3). All structures encountered were built of coursed slate stonework expertly laid up in a mortar of sandy clay loam. The dire assessments of earlier scholars notwithstanding, it was apparent that the living area within the curtain walls had escaped erosion and was nearly intact.[13]

1982

In the following year, the first under sponsorship of the National Endowment for the Humanities, the crew worked in the southwestern quadrant of the fort, an area dually threatened by erosion: on the south by the sea and on the west by a stream running alongside the fort. Excavation concentrated on Structure 1, the Dwelling, which had been built into the southwest corner of the curtain, and which had been sectioned in the initial tests.[14] The building, which apparently served as a lodging in both major periods of French occupation, left a footprint comprised of a cellar kitchen (1.1) connected by a stairway to a larger living space (1.2).

The area of excavation continued north of the Dwelling, where Structure 5, the chapel, once had stood over the entranceway and bridged the gap between the Dwelling and the Guard House. The principal archaeological feature surviving in this space, however, was the cobble paving of the entranceway, lying between the Dwelling and the doorway of Structure 4, the Guard House. Guided by ground-penetrating radar predictions, the crew also dug an isolated test pit at the far end of the Guard House which fixed the location of the northwest corner of the curtain and intercepted a small portion of a possible casemate beneath the northwest bastion.[15]

Separate crews worked to expand stratigraphic sections along and across the site. A trench, offset three meters to the north of the principal east-west section, sampled the area outside the curtain where Pentagoet's masonry intruded into an eroding shell midden. Here, partly intermixed in the construction of Pentagoet's earthworks, were found the principal remains of pre-Pentagoet occupations: prehistoric Indian middens and domestic refuse from the Plymouth Colony trading post. Finally, key segments of the original L-trench were completed in preparation for the excavation of Structure 2, the Barracks/Workshop, to be carried out the following season (Plate 2).

1983

The thrust of the 1983 season's work was the exposure Structure 2. This was a major three-cell complex which in Pentagoet I contained a workshop, a smithy, and a house, and in Pentagoet III served as the principal living quarters for the officers and men. Finally, in the mid-18th century, it was the site of an outbuilding for the Staples-Gray homestead. Work began with the expansion of the original L-trench into a T-shaped configuration which ran through the full length of the building complex and thus completed the east-west profile across the site from earthworks to earthworks. Structure 2 was then completely exposed and sediments removed one by one down to the Pentagoet I occupation floor.[16]

The summer's research also included the excavation of the interior of Structure 6, the well immediately north of Structure 2, which had been of great interest since its "discovery" by treasure hunters in 1855.[17] The feature was easily opened, pumped dry, and completely excavated, but proved to have been thoroughly cleaned out and substantially modified in the 19th century to make a wishing well. The significance of this well, which was not recorded in historical descriptions, did not become apparent until the following year.

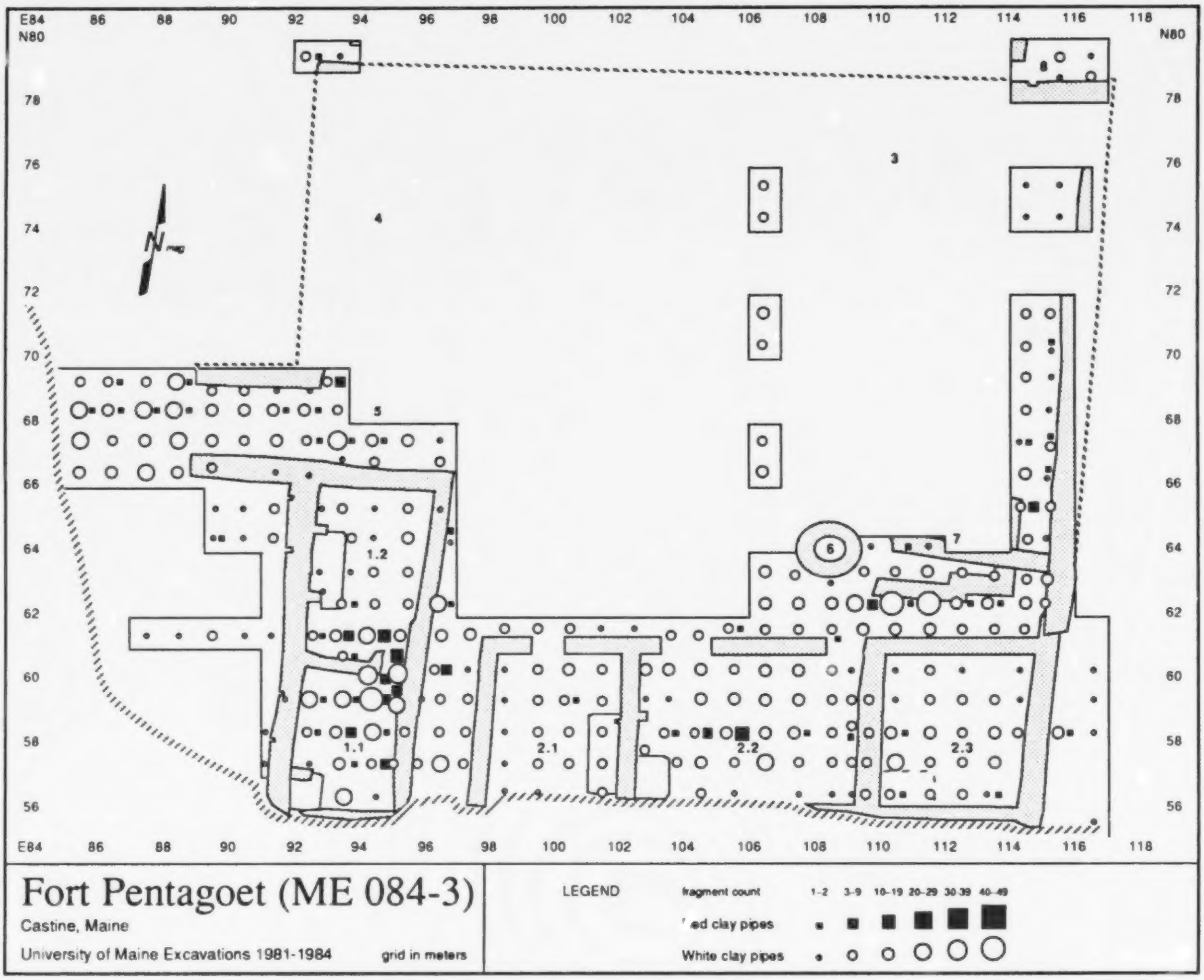
By the season's end, the entire portion of the fort compound bordering the southern and western erosional scarps had been exposed. Work began shortly thereafter on a protective sea wall, designed and financed by the U.S. Army Corps of Engineers.[18] This major construction project, employing huge blocks of quarried granite as a facing, was completed early in the spring of 1984 in time for continued archaeological work.

1984

The final field season was devoted to fleshing out a model of the site as a whole—testing likely areas of refuse disposal associated with features already excavated, and exploring portions of the landward half of the fort. It was, perhaps, a naive attempt to bring to a tidy conclusion a project which up to that point had proceeded rather predictably. However, as in most attempts to "wind up" archaeological work short of total excavation, the testing led to some startling new discoveries and raised new questions. These findings forced a major revision of our model of Pentagoet's layout, and whetting our appetites for further excavation at some future time.

On the eastern half of the fort, the search for trash deposits proceeded in two areas. Refuse from the Smithy/Workshop and the later Barracks was exposed on the paved courtyard immediately to the north of Structure 2. A segmented 2 m trench was also laid out along the eastern wall of the fort, designed to cross an area which, according to known cartography, was free of structures and was therefore expected to produce privies or trash dumps. Quite unexpectedly, these two test areas intercepted the hearth and footings of Structure 7, a timber-framed house not identified on any previous plans, descriptions, or radar scans. This was apparently the oldest of Pentagoet's buildings, one which was demolished prior to the 1670 descriptions of the fort and which evidently incorporated the mysterious well, Structure 6, within its foundations. On the basis of associated artifacts, it has been tentatively identified as d'Aulnay's residence. Associated with this house, in a ditch immediately to the east, was an extensive domestic midden which apparently accumulated there during Pentagoet I (1635–1654). The eastern curtain wall, moreover, proved to be a later construction built directly upon this stratum.

In the northeast corner of the site, the test trench inter-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56
N
1.1
1.2
2.1
2.2
2.3
3
4
5
6
7
Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND
fragment count
1-2 3-9 10-19 20-29 30-39 40-49
Red clay pipes ■
White clay pipes ○

Figure 4.7 Areal distribution of red and white clay tobacco pipe fragments.

cepted a portion of the east end of the Magazine, Structure 3.2, which apparently escaped the Collins excavations of 1892. Also exposed outside the curtain was a subterranean casemate or powder magazine, Structure 8, apparently built within the northeast bastion. This feature, not indicated in the descriptions and cartography of 1670, appears to have been added during the final phase of French occupation.

Finally, the area surrounding the fort's cobble paved entrance was expanded in search of dumping grounds expected to lie immediately outside the fort. This exposure revealed a small redoubt in front of the fort and a broad, paved apron lying directly in the pattern of traffic coming and going through the outer gate. Although it apparently was not a major site of trash disposal, the apron was rich in clay tobacco pipe fragments reflecting all periods of occupation.[19]

Chronology From Pipestem Bores

Many diagnostic artifacts—coins, bale seals, gunlocks, certain ceramic bottle and drinking glass types—can be used to date specific deposits at Pentagoet, but none gives a better overall picture of the intensity and duration of occupation than do clay tobacco pipes. As is true for many colonial sites, clay tobacco pipes occur in abundance at Pentagoet. As shown in Figure 4.7, they are found throughout the site, but are concentrated in places which might be expected to be areas of relaxation, social interaction, or refuse disposal: the paved apron in front of the entrance of the fort, the area about the stairwell between chambers of the Dwelling, surrounding the forge in the Smithy, and in a dead-end alley between the Barracks/Workshop complex and D'Aulnay's House. Conversely, concentrations were lowest in areas used principally for storage, such as the Magazine and the casemates of the northeast bastion. These were ubiquitous remnants of occupation—the cigarette butts of their day. The significance of stylistic variation in tobacco pipe form is considered in detail in Chapter 6; here the fragments of pipe stems provide a huge sample of data useful in studying the development of the site.

The regular and nearly linear decrease in bore diameters of clay tobacco pipestems over the period c. 1600 to c. 1750, first recorded by J. C. Harrington, has made these artifacts exceptionally useful for dating. It has become standard practice to use a simple linear equation developed subsequently by Lewis Binford as a rough estimate of mean occupation date. The method has a few inherent biases, but in general can be very useful for comparing events within and between historic sites.[20] In addition to merely dating the occupations, the bore diameters of nearly 1500 pipestems fragments are used here to study the sequence of development of various portions of the site, the relative intensity of occupation at various periods, and the nature of the fort's demise.

Applying the Harrington/Binford analysis to Pentagoet's assemblage admittedly violates two premises on which the method is based. Harrington's observations were made on white clay tobacco pipes of English manufacture, and his dating method has not been shown useful in analyzing some of the tobacco pipe forms found at Pentagoet. In the 17th century, the French did not produce clay tobacco pipes for export, and their colonies were supplied with both Dutch and English pipes.[21] Unfortunately, these Dutch products do not consistently exhibit a decrease in bore diameter with time.[22] Some 32% of the white clay pipe bowls of diagnostic form at Pentagoet were embossed in the Dutch "Crusader-and-Huntress" motif, and a few other types may have been made in the Netherlands as well.[23] Thus at least a third of the Pentagoet pipestem assemblage is likely to be of Dutch origin. Unfortunately, it is impossible at present to separate the 17th-century Dutch and English pipestem fragments consistently.

The second irregularity in the Pentagoet pipe assemblage is much easier to compensate for. In Maine, redware pipes occur as a small percentage of the collections of all sites which date to the third quarter of the 17th century, English or French. These pipes occur in the same molded shapes popular in Europe during this period—large "belly bowls" and heelless "export" forms. Red pipes of this date are virtually unknown in Europe, and it seems likely that these specimens were made somewhere in northeastern North America.[24] Preliminary work in Charlestown, Massachusetts, a well known center for pottery manufacture since the second quarter of the 17th century, has revealed small pipe samples containing as high as 30% redware specimens, and it is tempting to suggest that this may have been the source.[25] The Pentagoet pipestem assemblage, by comparison, includes 5.6% redware fragments—pieces which can easily be segregated from the rest of the collection in making bore diameter calculations.[26]

In spite of the "contamination" of the sample by Dutch pipes, the method seems to "work," yielding what appear to be exceptionally accurate estimates of Pentagoet's mean age (Figure 4.8). The data for white clay pipes generate a Binford date which matches that which would be expected assuming occupation only during the French periods, Pentagoet I and Pentagoet III. A weighted average date based on 18 men living in the fort from 1635 to 1654 and 24 men in residence from 1670 to 1674 yields an average of 1651, precisely the date computed from the total assemblage of white clay pipestems.[27] The redware pipestem bores, on the other hand, are consistently larger. While it may ultimately be possible to develop a useful regression formula for dating such redware products, the figure 1617 generated by the present method must be considered spurious.

Just as revealing as the mean bore diameter is the form of the bore distribution, which is taken here to be an indicator of the intensity and duration of occupation. The pronounced right skewness of the graph for the imported white clay pipes shows the sustained occupation and abrupt demise of the fort.[28] This effect is echoed in the small collection of locally made redware tobacco pipes, although in this case the bore diameters are displaced one size larger. The dearth of white pipestems having bore diameter smaller than 6, moreover, is a good indicator of the "purity" of the site, showing clearly that in spite of the brief Staples-Gray settlement, there was relatively little contamination of the site by 18th and 19th century occupations.

These interpretations are supported by data from nearby 17th-century English and French sites (Figure 4.8). Two major English sites in Maine, the fishing settlement on Damariscove Island and the principal trading post of the Clarke and Lake Company, both met catastrophic ends during the first of the Indian Wars in 1676, just two years after Pentagoet was destroyed. These data agree remarkably well with Pentagoet in distribution form and in estimated mean date. So too do the data from Saint-Castin's Habitation, Pentagoet's immediate successor, which was apparently abandoned at the end of the 17th century. Although the data from this French site generate a date earlier than expected, the shape of the distribution remains the same and is offset one bore size smaller, reflecting its more recent date. This form of skewed distribution occurs at other French sites as well, particularly Champlain's first and second habitations in Québec, occupied between 1608 and 1632 when the site was burned by the Kirke brothers.[29] Consequently it is reasonable to consider this distribution shape as typical of those frontier occupations which have come to an abrupt end.

While the site as a whole produces this classic skewed graph, samples of white clay pipes stems from separate areas within Pentagoet yield somewhat different distributions and

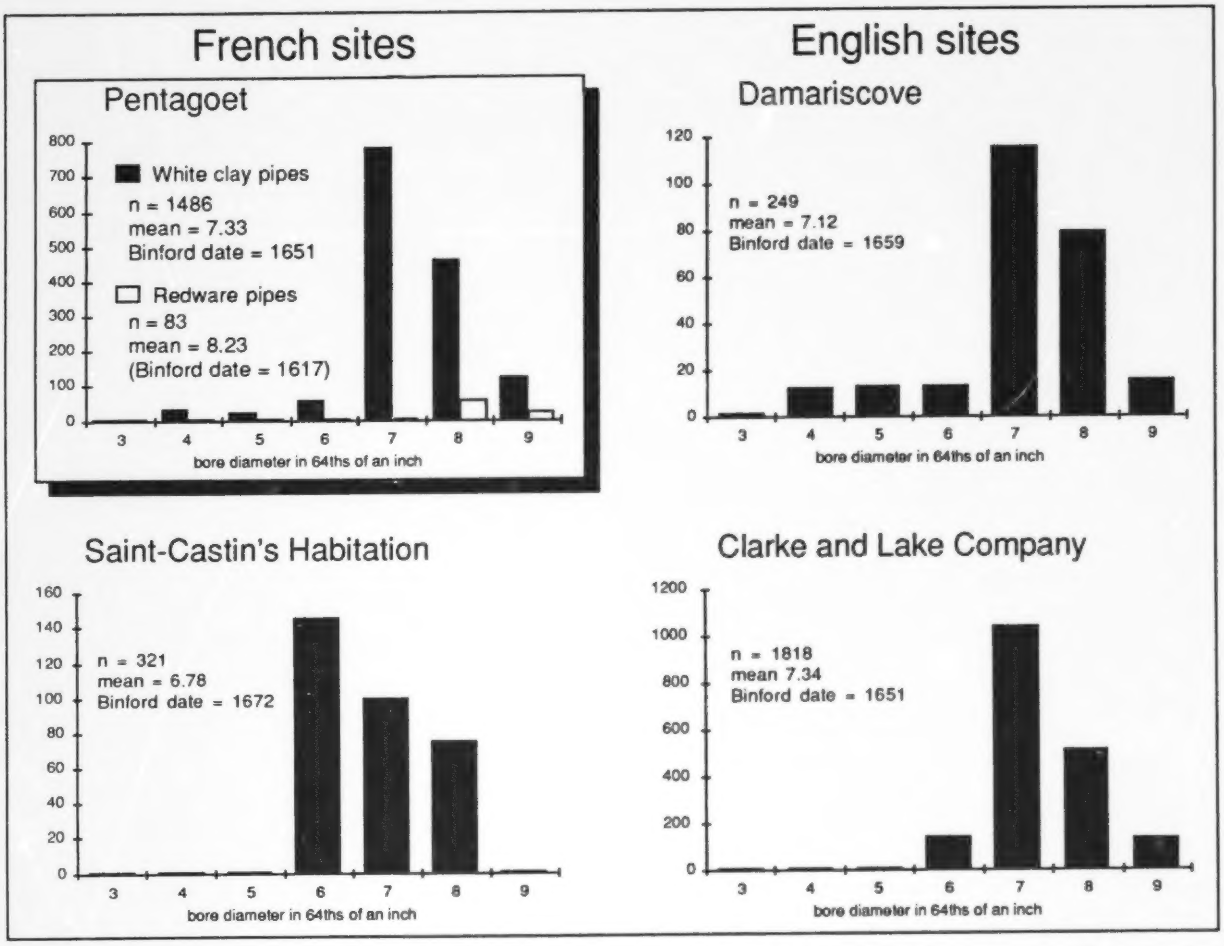


Figure 4.8 Pipestem bore diameters from two French and two English sites in Maine. The right skewness of the distributions of white clay pipes suggests an abrupt demise for these sites. The red clay pipes at Pentagoet show the same pattern, but in pipes with larger hole sizes.

mean dates. Nevertheless they consistently form one of two different graph shapes, shown in Figure 4.9. Pipes from the rooms of the Barracks/Workshop (Structure 2) yield peaked distributions like that of the site as a whole, while those from the rooms of the Dwelling (Structure 1) are more blunt, showing increased percentages of the larger bore pipes and producing dates which are 15 to 23 years earlier. A simplistic explanation for these different patterns, is that the Dwelling was older than the Barracks/Workshop complex. Other diagnostic artifacts, however, taken together with the stratigraphic sections, give no indication that the Dwelling was constructed before the Workshop, and show that both were in use at the time the fort was abandoned. A more likely interpretation is that Structure 1 may have housed relatively more people in Pentagoet I, while Structure 2 was frequented by a greater complement of men in Pentagoet III. As will become apparent, this is but one line of evidence supporting a general model of the reorganization of the fort. In this view, Structure 1 was reassigned in Pentagoet III from its original function as general living quarters, to replace the demolished d'Aulnay House as the governor's private residence. At about the same time, the original Smithy and Workshop in Structure 2, were remodeled to form a single barracks housing all the workmen and soldiers.

The tobacco pipes found outside the buildings have bore distributions which are consistent with this interpretation. The data from the entranceway seem to emphasize the final occupation of the fort, perhaps because the area was periodically cleaned of debris or because heavy traffic gradually reduced the pipestems to unmeasurable smithereens.[30] The pipestems from the dead-end alley between the Workshop complex Structure 2) and D'Aulnay's House (Structure 8) date somewhat earlier, having distributions typical of the fort in general. They were, it turns out, derived from separate

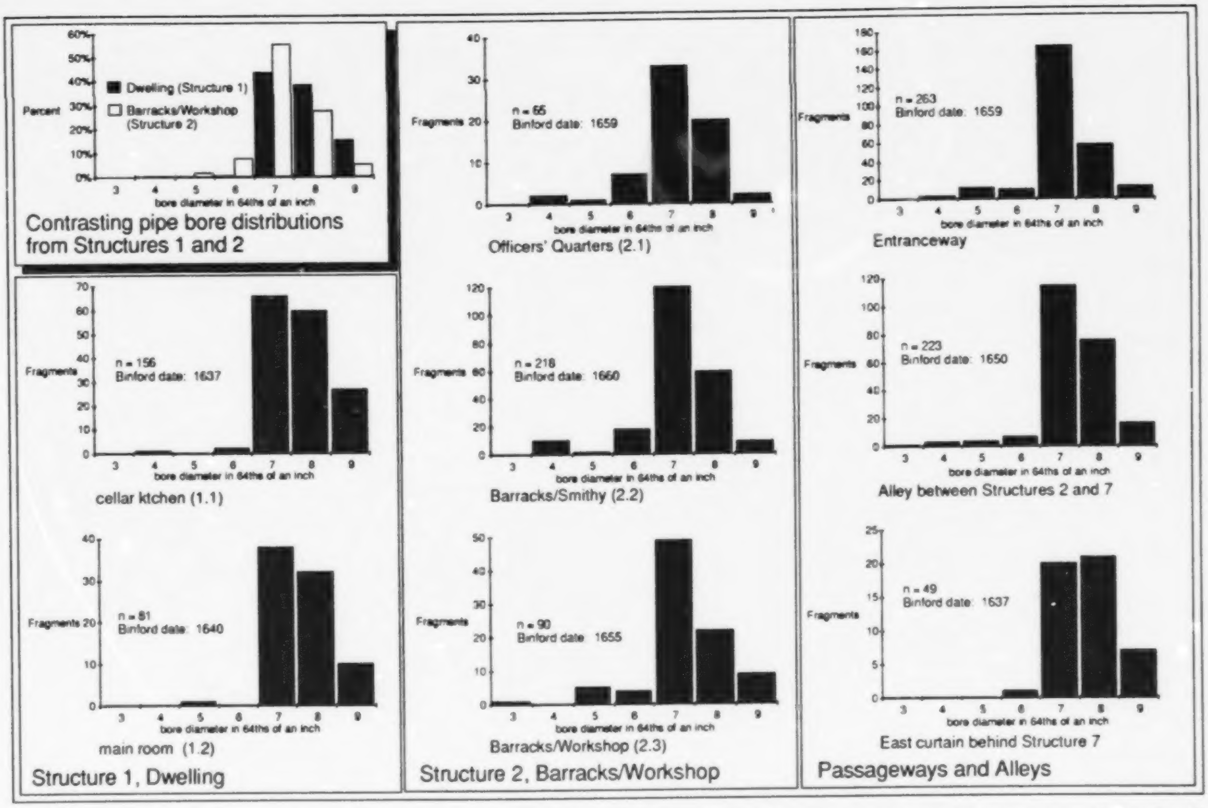


Figure 4.9 Bore diameters of white clay pipestems from key areas within the compound. Note that the rooms of the Dwelling consistently yield earlier dates than the units within the Barracks/Workshop Complex, and that the refuse behind Structure 7 dates earlier still.

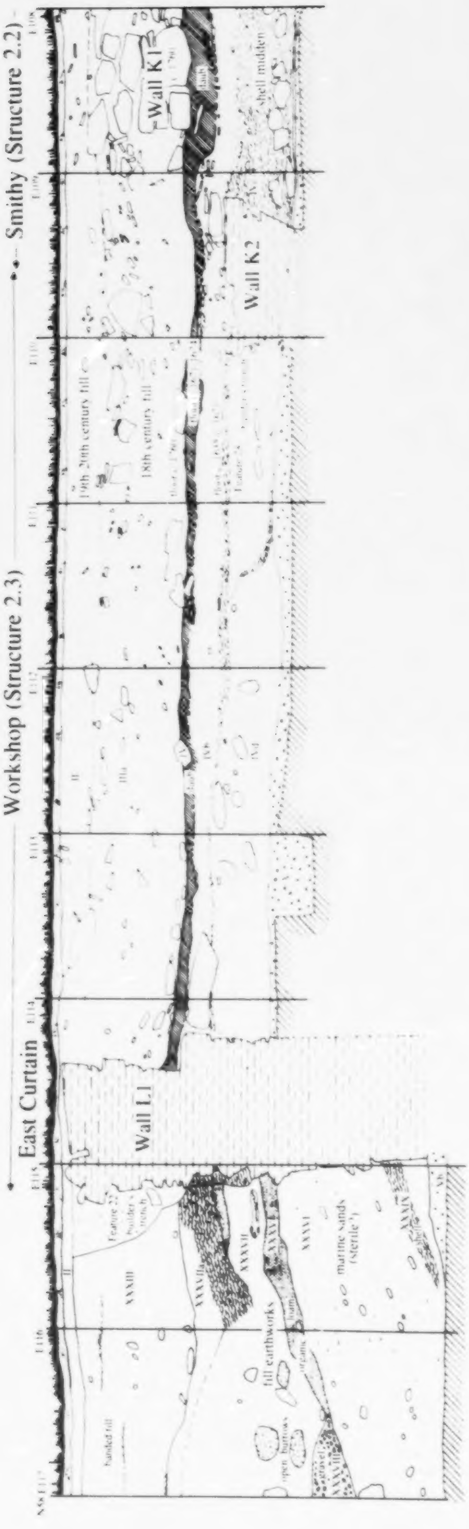
deposits: trash from the Pentagoet III Barracks and an underlying accumulation of Pentagoet I domestic refuse presumed to have come from D'Aulnay's House. A separate sample from behind D'Aulnay's House itself and underneath the east curtain is similar to that from within Structure 1, but dates earlier still. This suggests that "D'Aulnay's House" was indeed of Pentagoet I date.

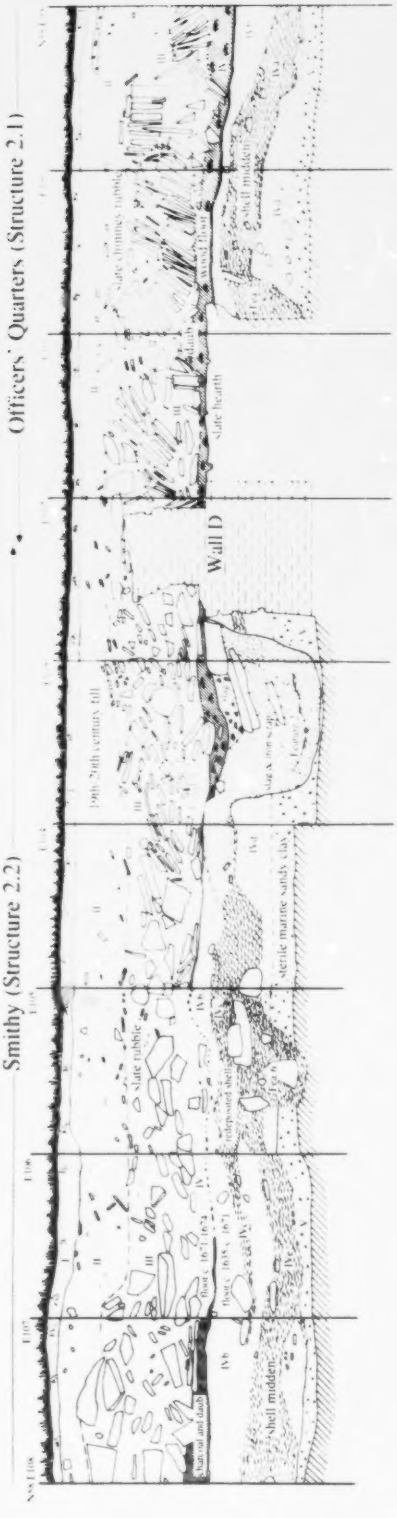
The Stratigraphic Sequence

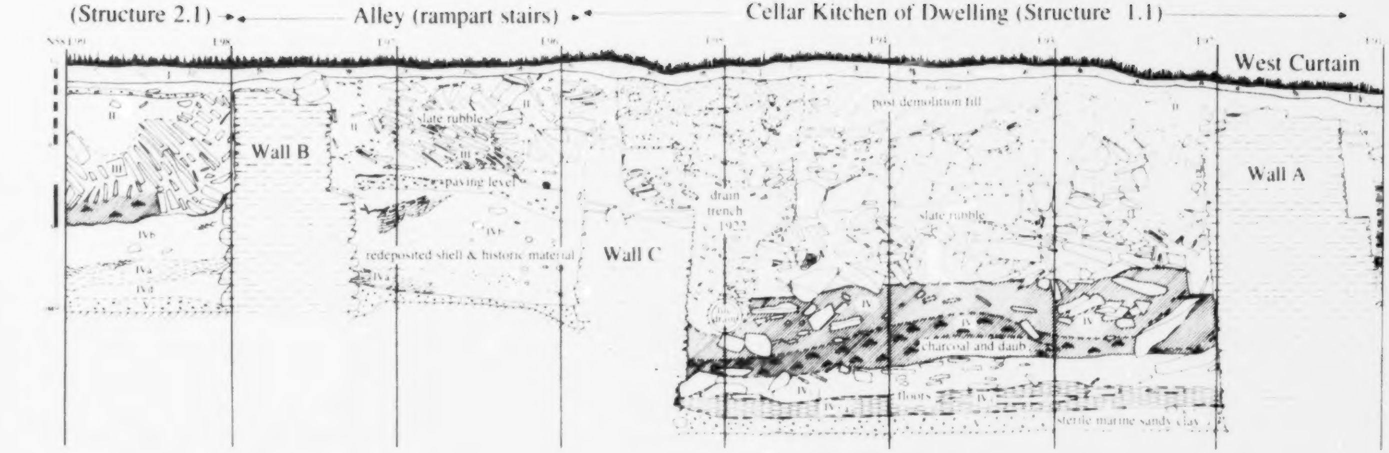
The pipestem analysis hints at major changes in the development of Pentagoet over the course of its existence, and many of these changes were discernible in stratigraphic section. The stratigraphy at Fort Pentagoet was generally deep and unambiguous, and its interpretation was comparatively straightforward. French occupations stood out particularly clearly, as they reflected episodes of major construction, sustained periods of occupation, and sudden, catastrophic burial. Typically, the wreckage of daily activity lay sandwiched between the regraded sediments from the fort's construction, and the extensive slate rubble of its demolition.

The evidence for certain major periods and events was clearly distinguishable, and was represented over large areas of the site. The most commonly identifiable contexts included pre-Pentagoet Indian and English occupation; Pentagoet construction, occupation and demolition; mid-18th-century English homesteading; and 19th- and 20th-century broadcast refuse and fill. In some areas, notably in the fill surrounding D'Aulnay's House (7) and the floors inside the Smithy (2.2) and the Workshop (2.3), the French occupations could be resolved into early and late periods representing the two major French occupations: the private commercial venture of Charles d'Aulnay (Pentagoet I, 1635–1654), and the military headquarters of Grandfontaine and Chambly, (Pentagoet III, 1670–1674). As is often the case, however, archaeological boundaries do not always correspond to the divisions perceived by historians. No sediments could be attributed exclusively to the interim period of English occupation, Pentagoet II (1654–1674), when the fort was operated for William Crowne and Sir Thomas Temple.

The essentials of Pentagoet's stratigraphy are revealed in the principal east-west and north-south stratigraphic trenches in Figures 4.10 and 4.11, which cut through Pentagoet and pre-Pentagoet occupations and extend into sterile marine


Smithy (Structure 2.2)
Workshop (Structure 2.3)
East Curtain
Wall K1
daub
shell midden
Wall K2
19th-20th century fill
18th century fill
Wall L1
Feature 22
builder's trench
XXXIII
XXXVIIa
fill earthworks
banded fill
open burrows
marine sands (sterile)
XXXVI
gravel


Officers' Quarters (Structure 2.1)
Smithy (Structure 2.2)
Wall D
slate chimney rubble
wood floor
shell midden
slate hearth
19th-20th century fill
slate rubble
redeposited shell
sterile marine sands/clay
charcoal and daub
shell midden


(Structure 2.1)
Alley (rampart stairs)
Cellar Kitchen of Dwelling (Structure 1.1)
West Curtain
Wall B
Wall C
Wall A
slate rubble
paving level
redeposited shell & historic material
drain trench c. 1922
post demolition fill
slate rubble
charcoal and daub
floors
sterile marine sandy clay

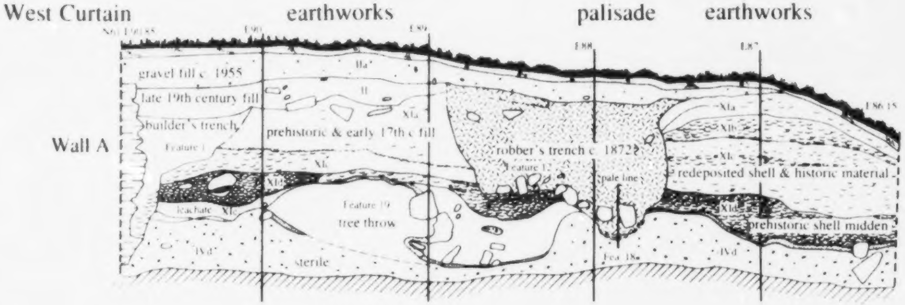

West Curtain
earthworks
palisade
earthworks
Wall A
gravel fill c. 1955
late 19th century fill
builder's trench
prehistoric & early 17th c fill
robber's trench c. 1872?
pale line
redeposited shell & historic material
prehistoric shell midden
tree throw
sterile

Figure 4.10 Principal stratigraphic section, running east to west across Pentagoet from the earthworks abutting the east curtain, through the Barracks/Workshop complex and the Dwelling, to the western earthworks. The section follows the N58 grid line up to the west curtain where it has been offset to the N61 line to avoid the erosional scarp.

sediments.[31] The sequence within the walls of the fort has been organized into five principal sets of strata, most of which have subdivisions. These sediments are continuous across large portions of the site, and, with a few noted exceptions, strata with the same designation are considered to be contemporary, if not identical. While detailed profile descriptions of both principal sections are presented in Appendix D, the essentials of the major stratigraphic units are summarized below.

Stratum I consists of sod and topsoil, that is O1 and A1 horizons, of the modern lawn. Seldom more than 10 cm deep, this stratum generally produced only isolated 20th-century refuse and lost items. Over most of the site, this lawn has developed since c. 1955 when the church pastor, Father John McVicar, authorized considerable re-grading of the yard.

Beneath this sod and topsoil is Stratum II, representing 19th and 20th-century broadcast refuse, and episodes of excavation and landfill. Because these deposits were created, in part, through reworking of earlier sediments, they often contained earlier materials as well: green-glazed French ceramics, hand-forged nails, 17th-century tobacco pipes, slate fragments, and prehistoric aboriginal materials. An exception is Father McVicar's fill, Stratum IIa, which is essentially sterile gravel derived from a local Pleistocene deposit.

Masonry rubble identifies Stratum III, and ranges from displaced slate and isolated pockets of mud mortar, to walls and chimneys which had toppled, but which were otherwise intact. In rare instances, 19th- and 20th-century materials occur in air pockets in the upper margins of Stratum III rubble, where they were transported by rodent activity. In most areas, this rubble is the immediate result of the Dutch assault of 1674 which destroyed the fort, although it is certain that further leveling occurred in the following three centuries. In one case, however, the sparse rubble accumulation of Stratum IIIa, which lies above Structure 2.3, represents Pentagoet building materials reused and redeposited during the Staples-Gray occupation of the 1760s.

Stratum IV proper represents the living surface or floor exposed at the time of the fort's destruction in 1674, and yielded many Pentagoet III artifacts left in place where they had been abandoned. Within buildings it usually comprises a layer of charcoal or a charred wooden floor often littered with fired daub from the mud plaster which once covered interior surfaces—all resulting from the burning of the roof and interior framing before the collapse of the masonry walls. Also puddles of clay loam—mortar which has washed out of the wall rubble in III—are often found on, or immediately above, the floor. In the cobble paved courtyard, Stratum IV is represented by a thin layer of refuse which accumulated between and immediately above the cobble paving. Most of the courtyard was free of slate rubble, and so was still near the surface during the 18th century, although a thin layer of sod probably covered it. It was here, in fact, that most of the artifacts attributable to the 1760s Staples-Gray homestead were found.

Strata IVa–e represent various pre-Pentagoet III accumulations. These include the French settlement of Pentagoet I (1635–1654), the English trading post Penobscot (1629–1635), and various prehistoric Indian clam shell middens attributable to Ceramic and Late Archaic occupations. Unfortunately, the English and aboriginal sediments are often intermixed. The loose shell middens have been substantially reworked, apparently in earthworks construction and in regrading prior to the erection of Pentagoet's buildings. Even where aboriginal middens contain whole shell, giving the appearance of being primary deposits, they often incorporate English ceramics, English tobacco pipes and hand-forged nails.

Stratum V and its variants are evidently sterile marine sediments—coarse sands and sandy clay loams. These strata usually contain scattered fragments of shell, and exhibit the gleyed colors of reduced iron—in this case various shades of olive—characteristic of sediments which have long been submerged.

East-West Section

The major east-west trench, illustrated in Figure 4.10, cuts across the entire site. It begins at the earthworks on the eastern side of the fort and bisects the three bays of Structure 2. It continues across a narrow alley, the site of the ramparts stairway, and then passes through the cellar kitchen of Structure 1. At this point the trench is offset northward to avoid the erosion scarp, and sections the shell middens and earthworks beyond the west curtain.

East Curtain and earthworks, N58 E117–115. The sediments east of Wall L are probably the most confusing and ambiguous at Pentagoet. The trench cuts a particularly awkward section here, perhaps intercepting a portion of the southeast gun platform. It has also apparently been distorted by extrusion of loose sediment along the nearby eroding scarp. The correlation of sediments east and west of Wall L, moreover, is unclear and represents one of the few cases at Pentagoet where we were unable to resolve the complexities of the stratigraphy satisfactorily. Nevertheless the profile reveals clearly some important details about the construction of the fort.

The strata above XXXVI all contain sparse accumulations of historic and prehistoric artifacts including both English and French ceramics, early 17th-century tobacco pipes, and aboriginal chipping debris and pottery. Slate is virtually absent in all of these sediments, except for the redeposited fill of Stratum II and the builder's trench. Elsewhere in the site, virtually all strata which were deposited after the construction of Pentagoet contain at least traces of this highly friable stone.[32] The original land surface immediately before Pentagoet was built is probably represented by the organic matter of Stratum XXXV, and the overlying deposits are interpreted as initial earthworks construction—fill comprised of mixed pre-Pentagoet sediments. This work may already have been completed when Miles Standish attempted to recapture Pentagoet just a few months after the French takeover in 1635, and discovered that "the French… lay close under a work of earth."[33]

The height of the ramparts is unknown, but they certainly rose well above the present lawn surface, and have been truncated subsequently. Probably the earthworks were originally higher than the masonry of the structures they protected; otherwise this area should contain some slate rubble from the destruction of the fort. A single, thin accumulation of late 19th to 20th-century date covers the remains of the earthworks, suggesting that they were cut down in the late 19th century.

Builder's trenches here and on the opposite side of the fort show that Pentagoet's masonry was laid up after the earthworks were erected. Wall L is roughly finished on the outside, indicating that it was built up against the ramparts and was never meant to be exposed. The marked slope of the original land surface outside this wall and the dislocation of pre-Pentagoet sediments on either side, suggest that this wall was placed at a natural break in the original landscape—a corner where the land fell off both towards the east and towards the southern shore. Although there is no cellar within the abutting structure, Wall L extends 1.48 m below the 1635 occupation surface—far deeper than necessary for frost protection. Instead, the deep footings of Wall L apparently anchored the southern curtain, and together they formed a retaining barrier for sediments within the compound.

Smithy/Workshop/Officers' Quarters (Structure 2), N58 E115–98. Originally Structure 2 was a three-unit complex which contained a workshop or storage room (2.3), an adjoining open air smithy (2.2), and a small house (2.1). It was built above a surface prepared from redeposited pre-Pentagoet shell middens represented by Strata IVa, IVc, and IVe. The first floor of the Smithy/Workshop was formed by the contact between the lower portion of Stratum IVb and the shell. On this surface were extensive coal, slag and iron scrap deposits associated with the operation of the Smithy during Pentagoet I. Feature 2, which intrudes into the redeposited shell, was apparently a pit for a quenching tub which stood immediately to the north of a forge, and contained at least 212 iron scraps, most of which had been cut off at the anvil's hardy.

Later, perhaps early in Pentagoet III, Structures 2.2 and 2.3 were combined to form a single enclosed barracks, a reorganization which will become clearer with the discussion of the building plan. Here it is sufficient to recognize that K2, the partition between 2.2 and 2.3, was razed and a fresh layer of sandy loam was spread over the K2 footings to make a new earthen floor. A sparse accumulation of personal items collected on Stratum IVb, the new floor. Fired daub and charcoal (Stratum IV) littered this surface, indicating that the combined rooms had become plastered living space by the time the fort burned in 1674.

According the Grandfontaine plan, Structure 2.1 served as the Officers' Quarters during Pentagoet III.[34] Alterations to this room were perhaps less drastic, but at some time its hearth was replaced, perhaps when the adjacent bays were remodeled. Fired clay, the remains of an earlier hearth, extends under the slate of its successor. Also beneath this slate, a post hole, Feature 8, intrudes into the earlier hearth, and is interpreted as a support used in the reconstruction of the chimney; its post mold, which does not appear in this section, was backfilled with burned clay from the original hearth.

The sole occupation surface within Structure 2.1 is a wooden floor, its charred planks decayed, but intact. Considering the disruption which must have occurred during hearth reconstruction, this is probably a replacement for an earlier wooden floor. Still, the few French materials found below the floor boards are small items which might well have fallen between the cracks, and it is impossible to separate them stratigraphically into early and late components. Above the floor is a thick layer of fired daub and charcoal, Stratum IV which is covered by the relatively intact, but toppled masonry of the chimney.[35] The continuous daub layer beneath this rubble indicates that the chimney and surrounding walls were plastered with mud.

Evidence of a third and final structure is represented by a crude, dry masonry wall, K1, which lies above Pentagoet's rubble in the eastern side of Structure 2. This was apparently an unheated outbuilding from a homestead of the 1760s, an occupation marked by English ceramics and tobacco pipes associated with wall K1 and the courtyard; a nearly complete, double-handled posset cup of Staffordshire dotware was found at the base of Wall K1 (Figure 3.2). The building, which apparently made use of sections of Pentagoet's masonry which were still standing, enclosed the eastern third of what had been the barracks. The interior was evidently cleaned of slate rubble down to, but not completely through, the last French occupation layer, Stratum IV. Unlike the careful French masonry, which was generally set on substantial footings, wall K1 was built directly on this stratum.[36] The scarcity of slate in Stratum IIIa, the subsequent fill from the demolition of this 18th-century structure, suggests that the building was timber-framed; surely the loose masonry of wall K1 was but a crude foundation, and did not extend to the full height of the building.

Alley/Ramparts Stairway, N58 E98–96. As in Structure 2, the shell and related pre-Pentagoet deposits in the area between the Officers' Quarters and the Dwelling were leveled prior to construction of the fort. In this case, however, the middens immediately adjacent to the walls are distorted, as sediments have become compacted beneath drip lines, and have settled. Above this initial construction surface, at the same level as the cobble paved courtyard, is a layer of gravel. The absence of paving is explained in Grandfontaine's plan, which shows that the space between these buildings was occupied by a stairway leading to the ramparts.[37] Nevertheless, several Pentagoet I and III artifacts were recovered from a thin deposit above the gravel and immediately underlying charcoal and slate rubble from the demolition of the fort. The stairway, then, may have been an open, wooden structure which allowed some debris to fall beneath it.

Cellar Kitchen of The Dwelling (Structure 1.1), N58 E96–92. The deep cellar of the Dwelling cuts through all preexisting occupations and into sterile marine sediments, stopping at about the level of the present water table.[38] Its builder's trench is clearly visible on the west side of the curtain, Wall A, and intrudes into a re-deposited mixture of prehistoric aboriginal shell and early English sediments. These materials include fragments of North Devon baluster jars, typical of frontier English sites dating prior to c. 1635; here they apparently derive from the Plymouth Colony trading post of 1629–1635.

Unlike Structure 2, there is no evidence for remodelling of this building after its construction. Strata IV_1 to IV_4, which seemed to be well-defined floors when first revealed in profile, turned out to be discontinuous lenses when exposed in plan. Nevertheless, they seem to represent a long term accumulation of materials, beginning with construction debris, followed by kitchen middens, and ending with slate fragments from the bombardment of the structure. Crossmends of pottery and pipe fragments suggest that some of these artifacts came from an adjacent room, Structure 1.2, and evidently were funneled down the cellar stairwell before, during, and after the building's collapse.

These occupational surfaces are covered by an average of 50 cm of fired daub and charcoal, Stratum IV, from the conflagration following the Dutch attack. The extreme thickness of daub and charcoal can be attributed to the collapse of the floor and roof of an upper story of the building into the cellar. Many personal items, artifacts from the living quarters above, were found in this stratum.

The overlying rubble of Stratum III contained no intact or toppled masonry, but rather, loose slate. Most of the mud mortar had been washed down into Stratum IV, leaving huge air spaces between rocks—a haven for woodchucks. Here the masonry seems to have been blasted to pieces, rather than merely toppled.

When the church was remodeled, c. 1921, a tile drain was installed leading from the church basement to the shore and passing directly through the eastern side of Structure 1. Its builder's trench, Feature 3, cut deeply into the profile, but did not disturb the floors of the cellar.[39] Nevertheless the ambitious ditch diggers destroyed or dislocated sections of the structure's eastern side, Wall C.

West Earthworks and Palisade Line, N61 E92–87. Because of substantial erosion of the earthworks at the southwest corner of the fort, the stratigraphic trench outside the West Curtain was offset three meters to the north, from the N58 line to the N61 line. This section shows the sequence of Ceramic Period and Late Archaic occupations introduced in Chapter 2, Strata XId–e, extending back in time from about A.D. 1540 to about 1000 B.C. A single radiocarbon date calculated using charcoal from Feature 16, a late aboriginal hearth pit which intruded into these middens and which was visible only in the opposite wall of the trench, yielded a date of 410 ± 70 years B.P.[40] Such occupations probably continued up until the establishment of the Penobscot trading post in 1629.

Pentagoet's earthworks lie above these aboriginal occupations, and are comprised of lenses of aboriginal shell midden mixed with debris from the earlier English truck house: Strata XIa–c. As is the case on the opposite side of the fort, this fill is free of slate, and must have extended high above the present land surface. Wall A, the west curtain, intrudes into these earthworks, and so was built later. Cross-mending fragments of North Devon baluster jars, characteristic of the Penobscot Post, occur in the earthworks fill and in Feature 1, the construction trench of the west curtain. Additional crossmends of these jars have also been established with sherds from strata underlying Structure 1.2 where the wooden floor had been penetrated by bomb craters. The near absence of French artifacts in these same contexts suggests that earthworks construction was among the first French accomplishments at Pentagoet and was followed shortly thereafter by the building of the curtain and the Dwelling.

This section also shows some evidence of what may have been the approximate limit of the outer defenses. Feature 18 marks a palisade or retaining wall built of wooden piles which were driven into the subsoil near the E88 line. As we have mentioned in the previous chapter, late 19th-century souvenir hunters dug up the tops of these pilings and pulled the wooden stubs out. Feature 12 is the resulting robber's trench. Remarkably, evidence for the line of driven pilings survives as open cavities beneath the backfill of the robber's trench. If these are indeed the outer defensive works, as seems likely, they suggest that the defensive works were small, in keeping with the compactness of the inner compound.

North-South Section

The north-south stratigraphic trench, shown in Figure 4.11, was confined to the interior of the fort. It extended from the fill within the Magazine (Structure 3) across the cobble paved parade ground to the middle of the Smithy (Structure 2.2), where it met the east-west trench. Unlike the latter, the north-south section was left segmented as the

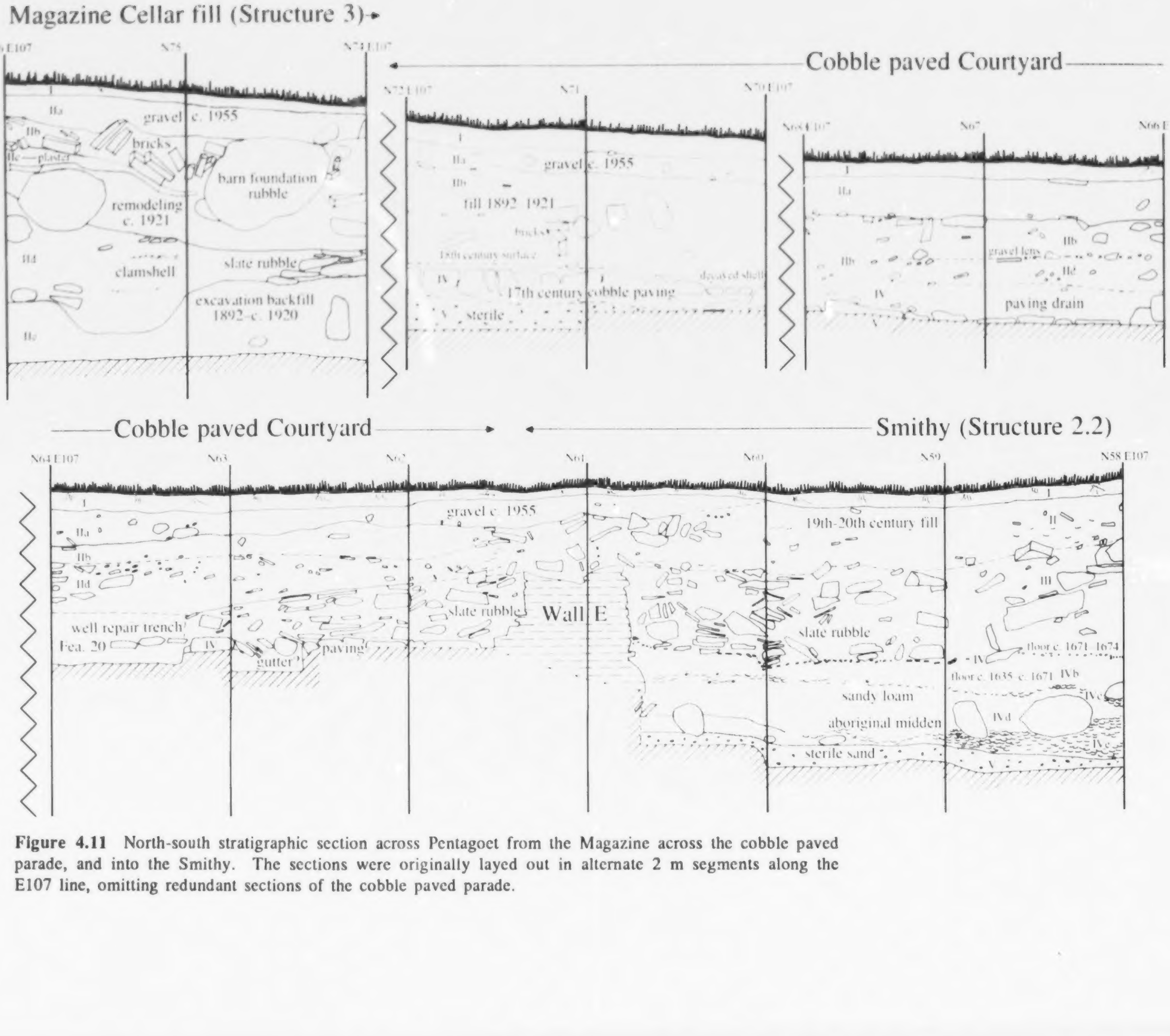

Magazine Cellar fill (Structure 3)
N76 E107
N75
N74 E107
Cobble paved Courtyard
I
IIa
gravel c. 1955
IIb
bricks
IIc—plaster
barn foundation rubble
remodeling c. 1921
IId
clamshell
slate rubble
excavation backfill 1892–c. 1920
IIe
N72 E107
N71
N70 E107
gravel c. 1955
fill 1892–1921
bricks
18th century surface
IV
17th century cobble paving
decayed shell
V
sterile
N68 E107
N67
N66 E107
gravel lens
IIe
IV
paving drain
Cobble paved Courtyard
Smithy (Structure 2.2)
N64 E107
N63
N62
N61
N60
N59
N58 E107
gravel c. 1955
19th-20th century fill
well repair trench
Fea. 20
gutter
paving
slate rubble
Wall E
III
floor c. 1671–1674
floor c. 1635–c. 1671 IVb
IVc
sandy loam
aboriginal midden
IVd
IVe
sterile sand

Figure 4.11 North-south stratigraphic section across Pentagoet from the Magazine across the cobble paved parade, and into the Smithy. The sections were originally layed out in alternate 2 m segments along the E107 line, omitting redundant sections of the cobble paved parade.

intervening information in unexcavated portions within the courtyard was assumed to be redundant.

Magazine (Structure 3), N76–74 E107. The northernmost segment of this trench was the first pit to be excavated at Pentagoet during the initial tests excavations of 1981, and lies within the Magazine. Excavation was apparently not continued to the bottom of the Magazine cellar, however, which is recorded to have been some 7 ft. 9 in. (2.36 m) below the 1892 surface.[41] Consequently the resulting profile shows no intact remains—just three comparatively recent episodes of backfill which have accumulated since the Collins excavation. The earliest, represented by Strata IId–e, consists of backfill and slump from the work in 1892 and includes cobbles excavated from the adjacent parade. Above this lie Strata IIb–c which contain large field stones covered with red paint—ruins of the barn foundation which once protected the Collins excavation—and extensive mortar, whole bricks and painted plaster from the remodelling of the church and replacement of its ell c. 1921. The final fill, Stratum IIa, is the sterile gravel brought in by Father McVicar, c. 1955.

Cobble Paved Parade Ground or Courtyard N72–60 E107. When the cobbled parade ground or courtyard was first sampled in a 1 m by 2 m pit, N70–72 E106–107, all the cobbles were removed, and the underlying sediments were penetrated, revealing that the cobbles lay on an apparently sterile subsurface of marine sediments. Thereafter, in subsequent pits to the south, the cobbling arrangement was retained in order to preserve the patterns of drains which might later be apparent in the paving in a future reconstruction. Cobbles were removed one by one, the sediment immediately below troweled through, and then the cobbles replaced in their original position. As in the original test pit, the deposit lying below the pavement appeared to be the same sterile marine sediment, Stratum V. Thus the parade ground lies north of the principal area of the surviving prehistoric shell middens.

This may not have been the situation originally, however, for the prehistoric shell midden formerly may have extended into the area later occupied by the courtyard. It is probable that the unusually level courtyard was prepared by cutting and filling during the construction of Pentagoet. The pre-existing landscape probably sloped seaward, gradually breaking more sharply as it approached the water, as is the case today for land east and west of the fort. The upper shell middens appearing in the east-west sections across Structure 2 are probably the redeposited by-products of this grading, held back, as has been suggested, by the southern curtain.

The principal 17th-century accumulation on the paving, Stratum IV, was concentrated in the area immediately outside Structure 2, beneath its stone rubble. These were comprised mainly of domestic refuse from the Pentagoet III barracks and waste from the operation of the Smithy during Pentagoet I. Throughout the length the north-south section, however, this Stratum IV also yielded domestic refuse from the 18th-century Staples-Gray homestead. This shows that the cobble pavement lay very close to the surface in the 1760s. Indeed, Wheeler's plan of the fort indicates that patches of the paving were still visible on the surface as recently as 1892.

The paving is continuous across this section through the parade except for a disturbance in the east wall of N64 E106. Here the profile intercepts the edge of the "reconstruction" trench, Feature 20, for a 17th-century well lying immediately to the east of the profile. The well, Structure 6, is discussed in detail below together with the plan of D'Aulnay's House, Structure 7. Suffice it note that the repair is modern; the feature contained several sherds of whiteware, a machine stitched shoe, and a little circulated 1892 Liberty dime, clearly dating it after the Collins excavation.

The deposits above the colonial surface are made up of fill, Strata IIa and IIb, most of which has accumulated since the amateur diggings of 1892. As was the case within the Magazine, this fill consists largely of debris resulting from the 1921 church remodelling, Stratum IIb. The plaster, lath, whole brick, and related demolition materials, occurring within a matrix of sandy loam, decrease in density towards the southern end of the parade, away from the church. Finally, the uneven surface presented by Pentagoet's ruins has been leveled by the addition of Father McVicar's gravel, Stratum IIa, c. 1955.

Smithy (Structure 2.2). The interior of the structure appears here much the same as it does in the east-west profile. Clearly visible are the two floors, Strata IV and IVb, of the Pentagoet III Barracks and the Smithy below. One noteworthy characteristic, however, is the apparent slope of sediments below Wall E, and the sloping conformity of this wall upon the underlying sediments. There is no builder's trench here, and the wall appears to have been built directly on the sloping ground. Unlike most other walls at Pentagoet, wall E does not penetrate the frost line, and therefore was not designed as part of a permanent, heated living space. Instead, as shall become apparent, it was part of a simple enclosure about the open-air Smithy.

Structures in Plan

The organizational sequence suggested by Pentagoet's stratigraphy unfolds more fully when the site is examined in plan. The detailed field drawings of features and structures have been assembled into a composite map of the site, parts of which appear below. Reflecting the preservation of the architectural remains, these plans generally represent structures standing during Pentagoet III, but they also show underpinnings of a few key Pentagoet I features which were demolished during various episodes of remodeling of the fort. Fortunately, the alterations in the layout of the site appear to

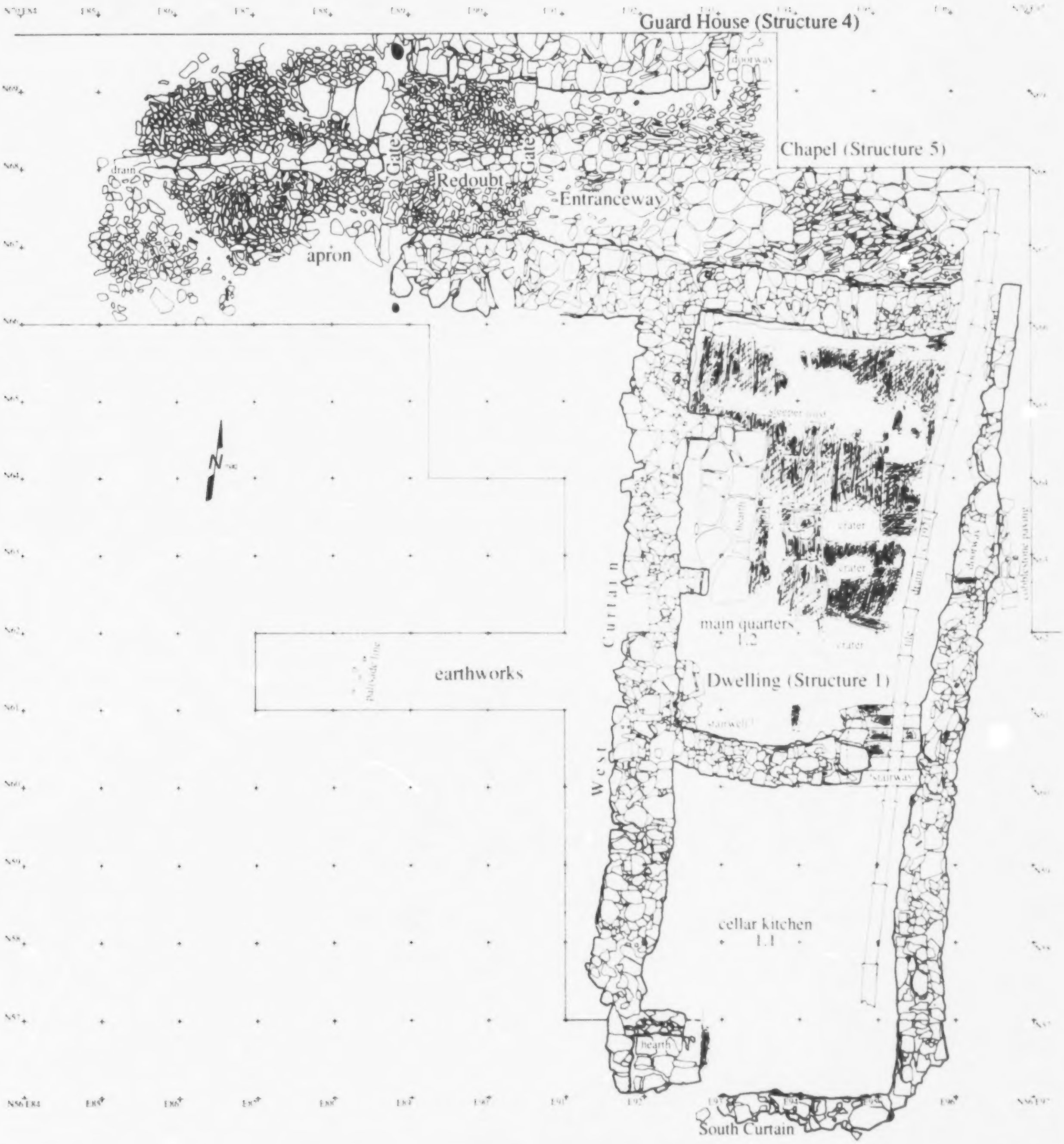

Guard House (Structure 4)
doorway
Chapel (Structure 5)
drain
Gate
Redoubt
Gate
Entranceway
apron
N
earthworks
palisade line
West Curtain
crater
crater
hearth
main quarters
1.2
crater
Dwelling (Structure 1)
stairwell?
stairway
cellar kitchen
1.1
hearth
South Curtain

Figure 4.12 Detailed plans of the southwest quadrant of the fort, including the entranceway, the doorway to the Guardhouse and the Dwelling. A stairway connects the principal living quarters of the Dwelling to a small, cellar kitchen, above which a second story sleeping chamber is thought to have been located. Shell craters from the destruction of the fort interrupt the wooden flooring of the main living quarters. Also the construction trench for a tile drain, installed c. 1921 to keep the basement of the adjacent church dry, has damaged much of the eastern wall of the structure, and passes through the cellar doorway.

have been few and uncomplicated.

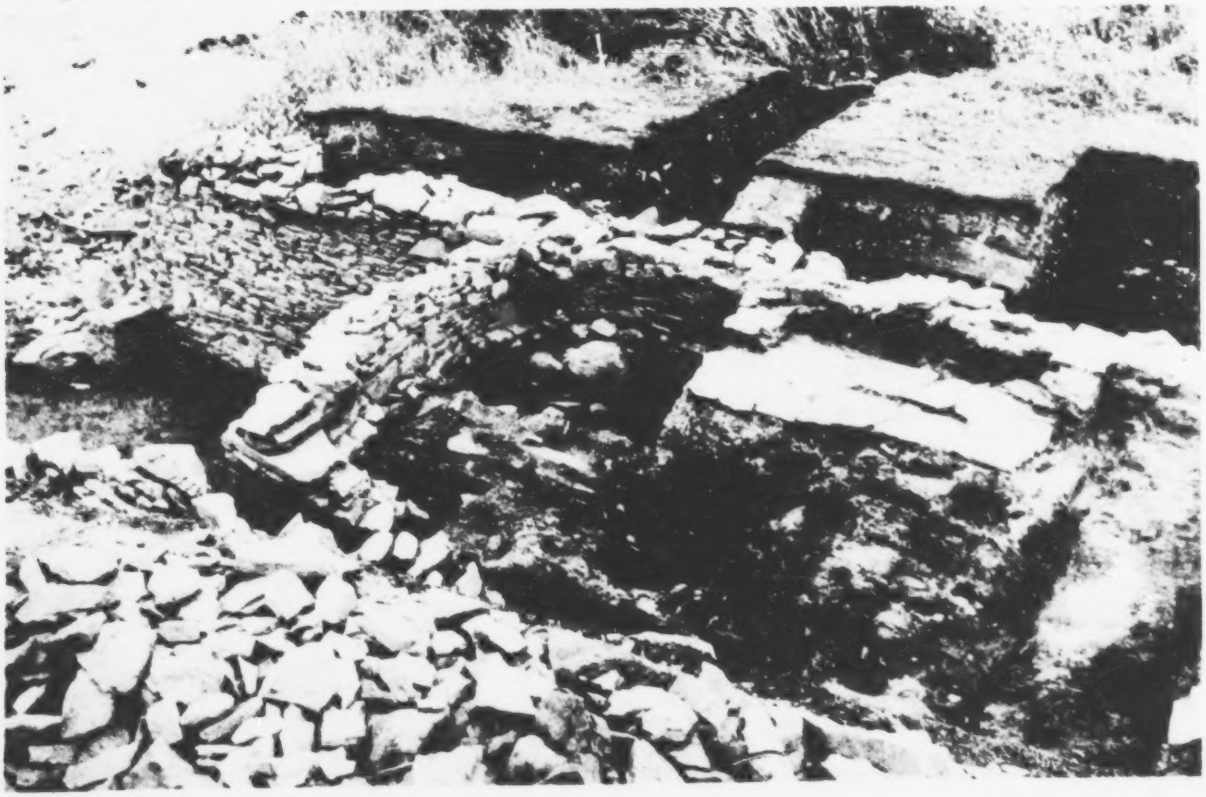
The Entranceway and Chapel

The entranceway is a small, nearly square projection some 3.75 m broad which extends 3.24 m out from the west curtain of the fort (Figure 4.12 and Plate 5). Within the walls the passageway measures a narrow 2.17 m. A pavement of beach cobbles continuous with the Parade leads between the Guard House and the Dwelling, through two gates of the "small redoubt" mentioned by Grandfontaine, and extends as an apron to the edge of a small stream running along the western flank of the fort. Large cobbles form a central drain which passes through the center of the gateway, and empties into the stream. The pavement changes pattern and drops in elevation in two places where it is flanked by posts marking the inner and outer gates of the redoubt, a tiny feature just 1.93 m long which guards the entranceway.

Naturally no footprint remains for Structure 5, the Chapel, known from the 1670 descriptions to have stood between the Dwelling and the Guard House, as this building spanned the entranceway overhead. Still the dimensions of the passage between the latter two structures and the placement of the inner gate set limits on the size of the Chapel, which could have been no greater than 2.90 m wide by 5.65 m long. Framed in timber and walled with mud plaster, perhaps in a variant of wattle and daub construction, this structure left only a thin layer of mud and charcoal on the paving below from the burning of its superstructure. As might be expected, the paving surrounding the doorway of the Guard House was littered with fragments of clay tobacco pipes, but no artifacts were found which could be associated unambiguously with the Chapel.[42] Indeed, religious artifacts were all but absent at Pentagoet.

Much has been made of the Chapel by those seeking to establish Fort Pentagoet as the site of the first Catholic church in this region. Its small size, its wooden construction, and its location over the entranceway indicate that the actual structure was probably little more than a belfry or cupola with a small chamber for private worship. The chapel's significance may have been largely symbolic—an architectural expression at the entrance to the fort which proclaimed the Christianity of the garrison within. If Pentagoet was an active center for missionary work, moreover, the evidence for it did not lie within the walls of the fort. Instead, the focus of such activity may have been the mission, mentioned in the previous chapter, which stood a few hundred meters

Figure 4.13 Excavation of the Dwelling (Structure 1), a split-level house exposed in the southwestern corner of the curtain, looking southwest. Note the depressions left by sleepers for the flooring to the right of the fireplace.



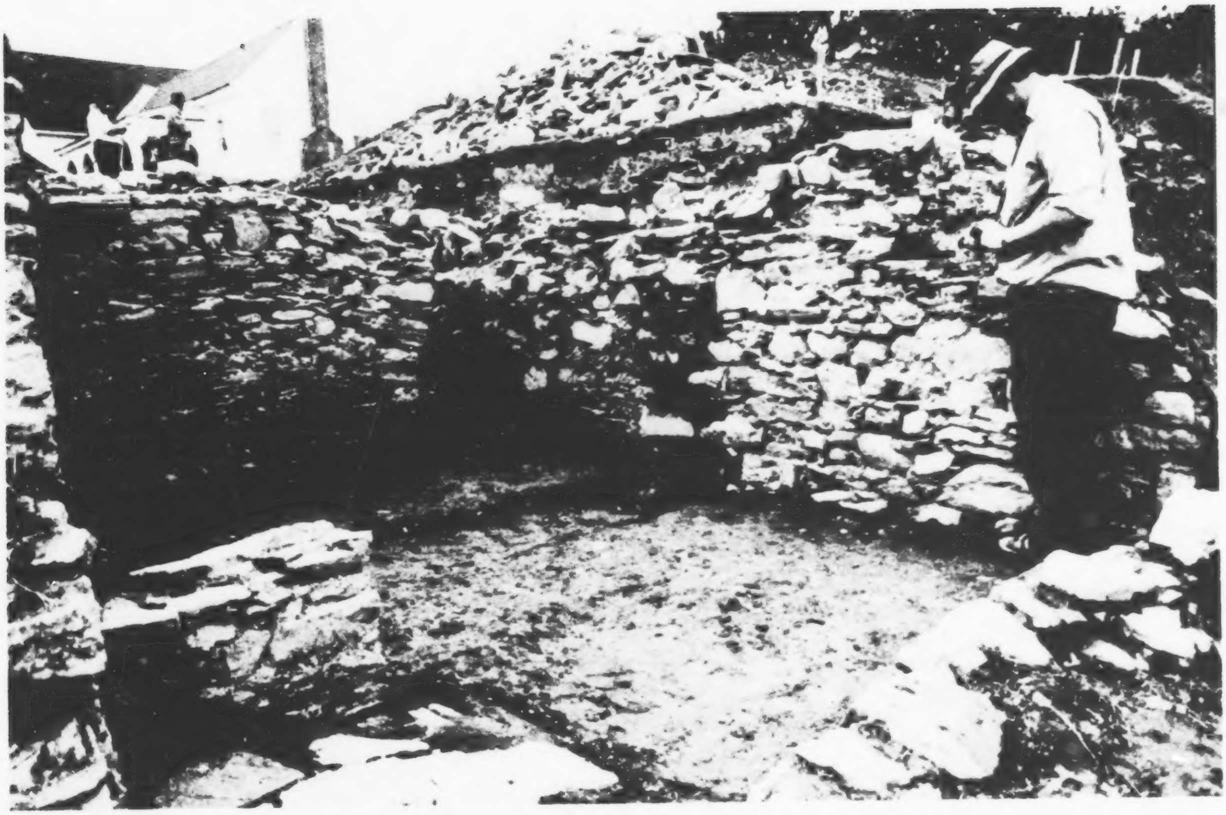


Figure 4.14 Cellar kitchen of the Dwelling looking north. In the left foreground is a fireplace set in the corner of the southwest curtain, and at center is a stairwell which leads up to the main living quarters.

west of the fort in 1648.

The Dwelling

Described as a three-room "house" in the 1670 "State of the Fort," Structure 1 proved to be a split-level dwelling averaging 11.28 m long by 4.64 m wide, which was built into the southwest corner of the curtain (Figures 4.12 and 4.13, and Plate 4). The Dwelling is situated on the exposed southwestern corner of the fort, the closest point to the approach from Penobscot Bay, and apparently has suffered the full effects of the 1674 bombardment and subsequent erosion. Its floor has been pock-marked by bomb craters which have exposed underlying debris from the Penobscot trading post and aboriginal shell middens. In recent decades all but the lowest courses of the south curtain have eroded away through wave action. Also about two-thirds of the eastern wall of the building was damaged by a tile pipe installed c. 1921 to drain the cellar of the church. The outside doorway was evidently destroyed by the installation of this drain, although its location is indicated by cobble paving leading to it from the courtyard.[43]

In spite of these disturbances, the footprint of the Dwelling survives essentially intact. Two rooms appear in plan: a main room (1.2) measuring 6.03 m by 4.64 m and a smaller cellar (1.1) measuring 5.25 m by 4.50 m adjacent to it. A narrow stairwell leads down eight steps from the upper room to the lower chamber some 1.50 m below (Figures 4.14 and 4.15, and Plate 3).[44] A heavy door, whose lower strap hinge and pintle were found in place in the east jamb, opened into the cellar. The third room, not evident in plan, apparently stood above this lower chamber, and was probably accessible from the main room via a wooden staircase, the location of which is indicated by a break in the wooden flooring.

The more spacious upper chamber, with its planked flooring, and its broad, slate fireplace is interpreted as the principal living quarters of the Dwelling. The occupants apparently kept their small arms here, leaving a concentration

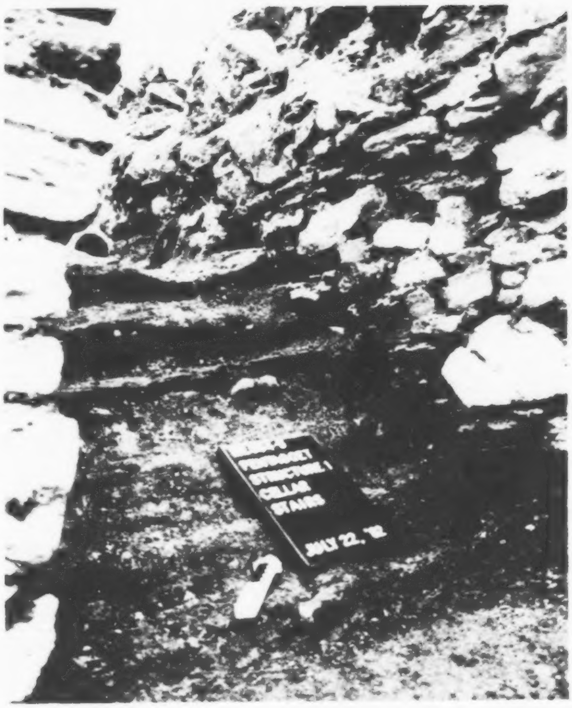


Figure 4.15 Detail of the stairway leading down into the cellar kitchen of the Dwelling. Note the sockets in the masonry which accommodated eight stair treads. A strap hinge and pintle, removed for conservation, were found in place on the right hand side at the base of this stairwell.

of some 26 small pistol gunflints within the room at the time of the fort's destruction. This main room was relatively free of kitchen refuse, but contained most of the few faience serving vessels represented at the site, suggesting that it was used for private dining by the fort's elite.

The lower chamber, on the other hand, contained numerous utensils associated with food storage and preparation, as well as a large copper cover interpreted as the lid of a barrel. The earthen floor was littered with animal bone, shell, and organic matter, a midden which was especially dense in the area of a small hearth in the southwest corner of the room. Consequently the lower chamber is interpreted as a small, private, cellar kitchen. It seems reasonable that the third room, lying above the cellar chamber, served as sleeping quarters. Trunk hinges and fragments of clothing, presumed to represent the contents of the upper chamber, fell into the cellar kitchen below when the building was destroyed.

From its private, self-contained facilities, the Dwelling appears to have quartered the fort's military elite. After the demolition of Structure 7, the so-called D'Aulnay House, these would have been the most comfortable, private living accommodations within the fort, and may well served as the governor's residence during Pentagoet III.

The Barracks/Workshop/Officers' Quarters Complex

The plan of Structure 2 shows an aggregate of buildings of various functions which shared the same masonry only for economy of space and construction. Its rectangular perimeter is long and narrow, measuring 17.75 m by 5.87 m, and runs along the scarp parallel to the waterfront where it has been slightly damaged by erosion (Figures 4.16 and 4.17 and Plates 6–8). All units are constructed on one level—at virtually the same elevation as the courtyard and the principal chamber of the Dwelling—and have no cellars. As we have seen in profile, this structure has undergone some important changes its lifetime.

Originally, in Pentagoet I the ground plan was divided into three bays, a tripartite differentiation which continued up to 1670. At this time the complex was described as "half roofed with shingles," the result not of deterioration, but rather of design.[45] The complex consisted of two structures separated by an open bay. The western bay (2.1) was a separate house with its own private entrance, whereas the central bay (2.2) contained an open-air forge and connected on the east side with a workshop (2.3).

Measuring just 4.87 m by 5.87 m, Structure 2.1 is the smallest of the original three units in plan, although it may have had a second story sleeping chamber. At first it may have provided lodging for important artisans such as the armorer and the stonemason; later, in Pentagoet III, Grandfontaine indicated that it served as an "Officers' Quarters." Its fireplace, and probably its flooring were replaced at least once during its history, but the basic plan of the room does not appear to have been altered. Though smaller, the room offers the same amenities as the main chamber of the Dwelling: planked flooring, mud daubed walls, and a broad hearth.

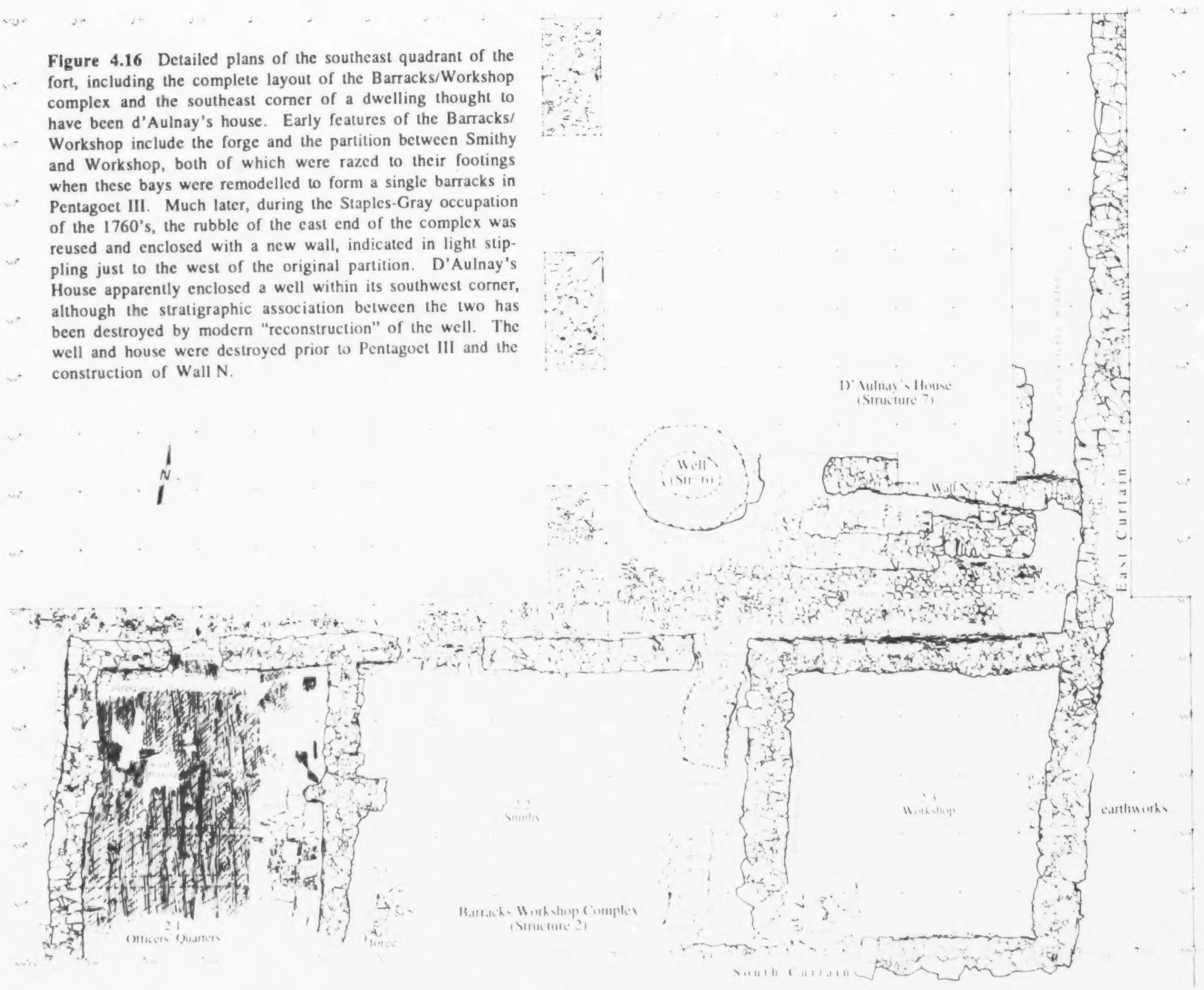

D'Aulnay's House
(Structure 7)
Well
(Str. 6)
Wall N
East Curtain
earthworks
2.3
Workshop
2.2
Smithy
Barracks Workshop Complex
(Structure 2)
2.1
Officers' Quarters
Forge
South Curtain
N

Figure 4.16 Detailed plans of the southeast quadrant of the fort, including the complete layout of the Barracks/Workshop complex and the southeast corner of a dwelling thought to have been d'Aulnay's house. Early features of the Barracks/ Workshop include the forge and the partition between Smithy and Workshop, both of which were razed to their footings when these bays were remodelled to form a single barracks in Pentagoet III. Much later, during the Staples-Gray occupation of the 1760's, the rubble of the east end of the complex was reused and enclosed with a new wall, indicated in light stippling just to the west of the original partition. D'Aulnay's House apparently enclosed a well within its southwest corner, although the stratigraphic association between the two has been destroyed by modern "reconstruction" of the well. The well and house were destroyed prior to Pentagoet III and the construction of Wall N.

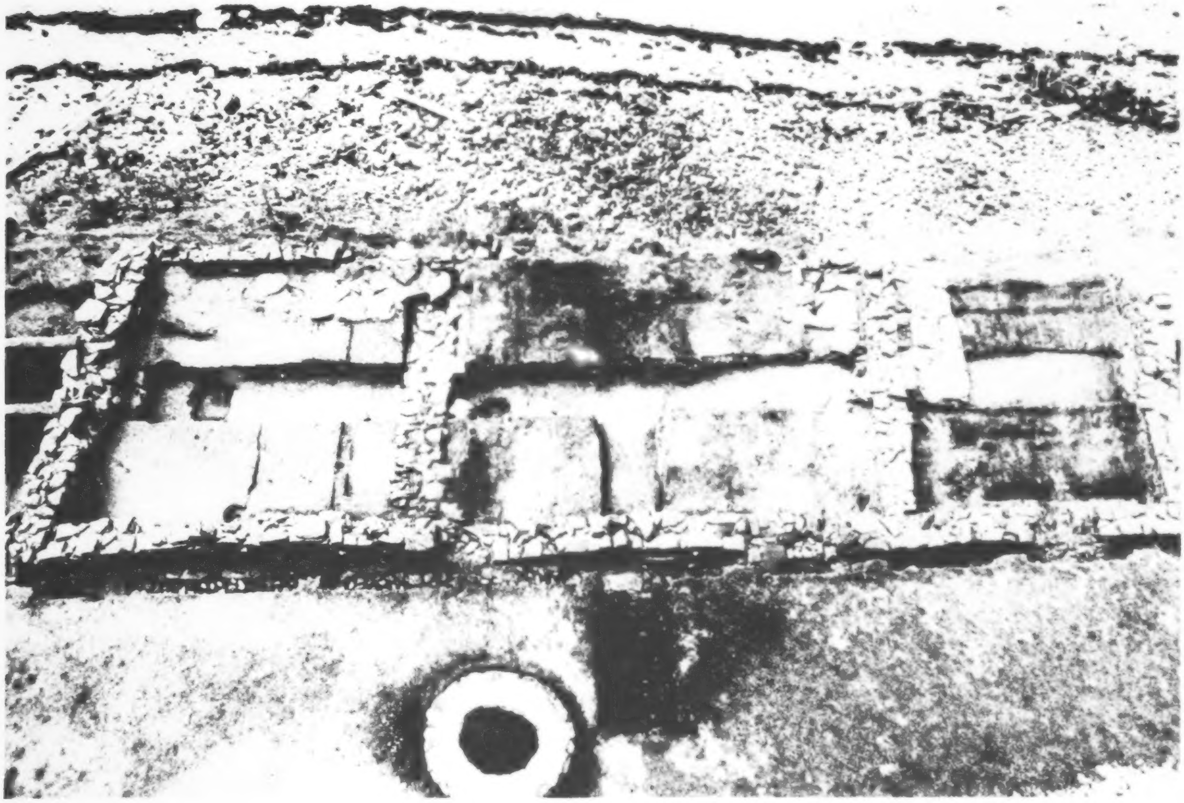


Figure 4.17 Aerial view of Structure 2, the Barracks/Workshop Complex. On the left, the hearth of the later one-room Barracks extends over the footings of the former partition between the Workshop and the Smithy. The small Officers' Quarters is at the right, its fireplace back-to-back with the forge.

Next door stands the open-air Smithy (2.2), which at 7.31 m by 5.87 m, is the largest of the three units. The function of this building is clear from iron scrap, coal, and slag which littered the floor and surrounded the slate footings of a square forge. This forge stands in the western side of the unit, back-to-back with the fireplace of the Officers' Quarters, an arrangement which allowed them to share a common chimney. Such walled, but roofless work areas remain common features of rural architecture in many parts of Europe today, and in the close quarters of this 17th-century fort, the layout seems especially appropriate as a fire precaution. Two doorways connect the Smithy with the courtyard, while a third, now obliterated, once linked it to an adjacent service building or workshop.

The last of the original three units, the Workshop (2.3), measures just 5.57 m by 5.87 m, and is accessible only through the Smithy. There was no hearth within the building at first, and one of its functions may have been to store supplies and fuel for work at the forge. It is identified as a workshop, however, because a dense accumulation of slag and iron scrap, flintknapping debris, sheet copper and brass, lead sprue, broken tools, and related debris was found upon the earthen floor of this structure continuing into the adjacent Smithy and out onto the paved courtyard.[46] The extensive record of manufacture and repair work preserved within these two rooms is especially important in understanding the maintenance requirements of the fort during Pentagoet I, and is taken up in detail in the following chapter.

In Pentagoet III, or perhaps earlier, Structure 2 was substantially reorganized. The Workshop and open Smithy were joined under a continuous roof to form a one-room structure measuring 12.88 m by 5.87 m, identified by Grandfontaine as quarters for "the workmen and soldiers." The sequence of alterations, already discussed in profile, is apparent in plan as well. The forge has been razed to its footings, as has the partition between the two bays. Along the center of the south wall, a broad, new hearth extends over the footings of the former partition. Recall that the later floor of the Barracks, which covered the earlier features yielded some personal effects of the soldiers and fired daub—evidence that the walls of the barracks were plastered in an effort to make weatherproof living space.

A Post-Pentagoet rubble wall, already introduced in profile, appears in light shading on the plan. Apparently the ruins in the east end of Structure 2 were later used as underpinnings for a temporary English structure—an unheated outbuilding which formed part of the Staples-Gray homestead built in the early 1760s. The wall and doorway were constructed directly over the 17th-century rubble, enclosing an area approximately 5.92 m by 5.87 m above the former Workshop. In the construction process, the interior was cleared of slate rubble, but very little damage has been done to the footprint of the earlier structure below.

"D'Aulnay's House" and Related Features

The excavation plan immediately to the north of Structure 2 is as complex as it is fragmentary (Figures 4.17 and 4.18). It includes the partial plan of Structure 7, a hitherto unknown dwelling which was exposed in the search for refuse from the Smithy and Workshop.[47] This seems to be the earliest structure yet identified at Pentagoet—one which probably served as quarters for d'Aulnay or others in authority. While these eleventh hour excavations uncovered only the southern end and southeastern corner of the building, they located two key features of the structure: the hearth and well. Complicating the plan is Wall N, a later section of masonry of undetermined significance which ties into the eastern curtain of the fort and crosses obliquely over the footings of Structure 7.[48]

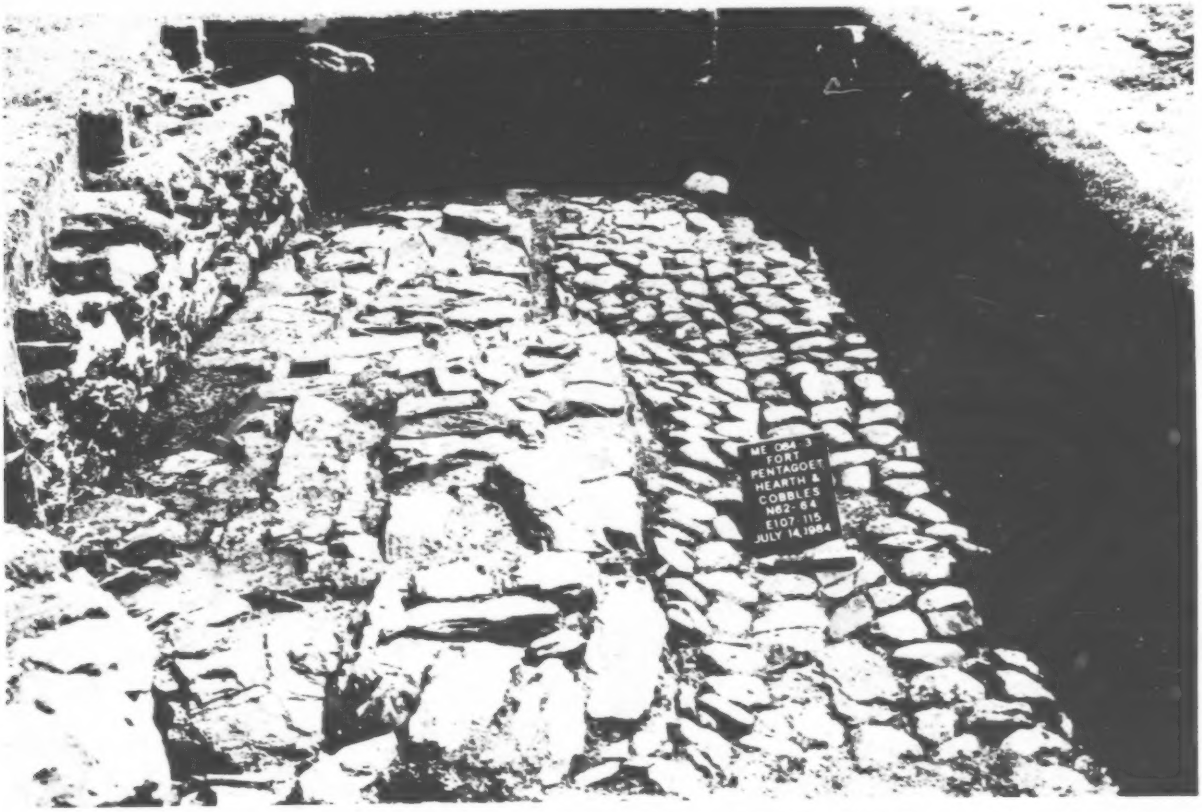


Figure 4.18 Structure 7, believed to be the oldest structure yet identified at Pentagoet and to have served as the residence of Charles d'Aulnay, looking east. This partial excavation exposed the footings of the southern end of the building, including the chimney base and hearth shown in the foreground. Wall N, on the left, was built across these footings towards the end of the final occupation of the fort, adding to the complexity of the picture. A cobble paved alley with a central drain, right, separates this structure from the Barracks/Workshop Complex, indicating that the two structures co-existed when the paving was laid down in Pentagoet I.

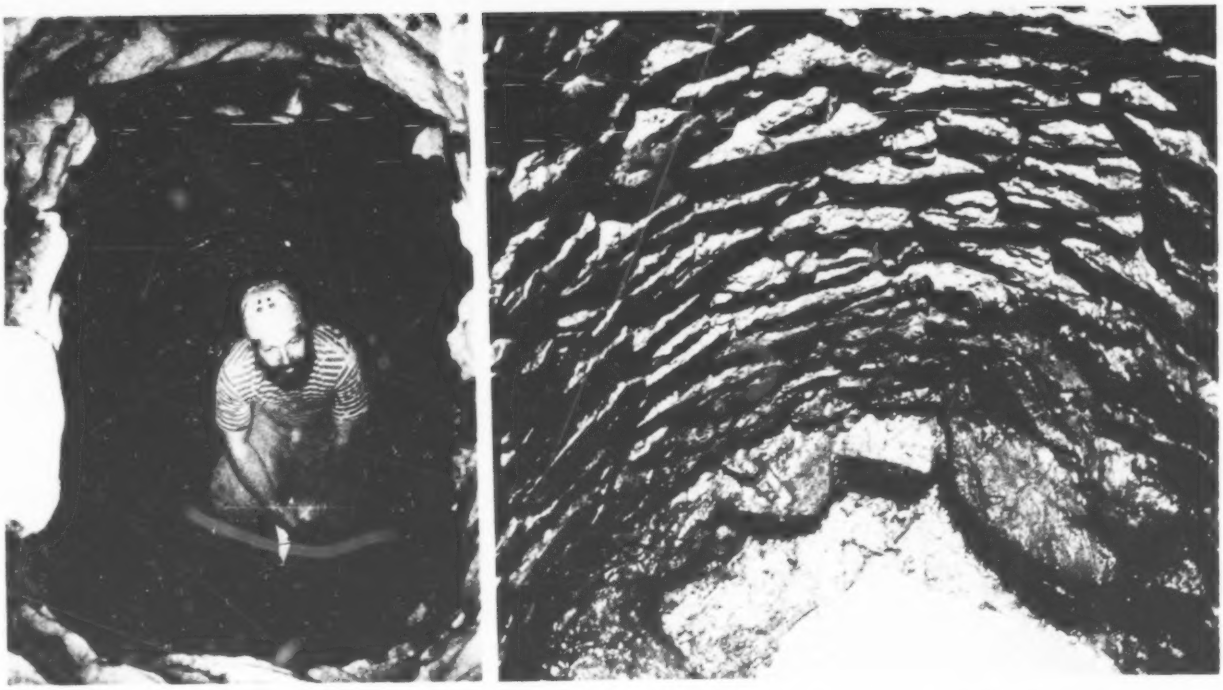


Figure 4.19 Interior views of an oval-shaped well, Structure 6. Note the coursed slate masonry which, although lacking clay mortar, is similar to that of the rest of the fort.

As it was only partially excavated, Structure 7's size and form can only be estimated. Ground-penetrating radar charts of the surrounding paving and the configuration of drains excavated in the parade suggest an inverted T-shaped plan oriented north-south, its maximum dimensions 8.5 m long by 6.6 m broad (Figure 4.1). Unlike the other structures within Pentagoet, this building was apparently of timber-frame construction set upon shallow stone footings, and was fitted with glazed windows.[49] The independence of this free-standing structure from the general plan of the fort, its impermanent design, and its early demise indicate that it is the earliest structure yet identified at Fort Pentagoet. Indeed, the individual character of the structure might suggest that this was originally the Plymouth Colony truck house, were it not for the observation that all the associated artifacts appear to reflect French sources of supply.

Immediately west of the hearth is the well, Structure 6, now interpreted as an interior feature incorporated within the southwest corner of Structure 7 (Figure 4.19). The original structure, slightly oval, and measuring about 1.05 m in maximum interior diameter, is laid up in dry slate masonry and extends approximately 3.27 m below the level of the 17th-century courtyard. It is reported to have produced axes, powder horns, and other artifacts when first discovered in the mid-19th century, but since 1892 this feature has undergone substantial alteration. A new upper section has been added, rising from the 17th-century ground level to a height 30 cm above the modern land surface. Also the well has been thoroughly cleaned out and sealed with concrete to serve as a wishing well from which coins could easily be recovered.[50]

The extensive area damaged by this remodeling is apparent in section and plan views (Figure 4.20). The disturbance of the stratigraphy together with the looting of the contents of the well have destroyed the best lines of evidence which would have determined the relationship of the well to its original surroundings. Fortunately, however, a newspaper correspondent writing in 1880 before the remodelling noted that a stone wall crossed over the top of the well. This was surely wall N, a projection from the east curtain now truncated by the "restoration" trench. This evidence, together with the slate construction of the well itself ensures that the well is an early Pentagoet feature, rather than a later construction unrelated to the fort.[51]

Although the association of the well with the adjacent dwelling is circumstantial, the inference is compelling. As neither structure is noted in the records of 1670, and both

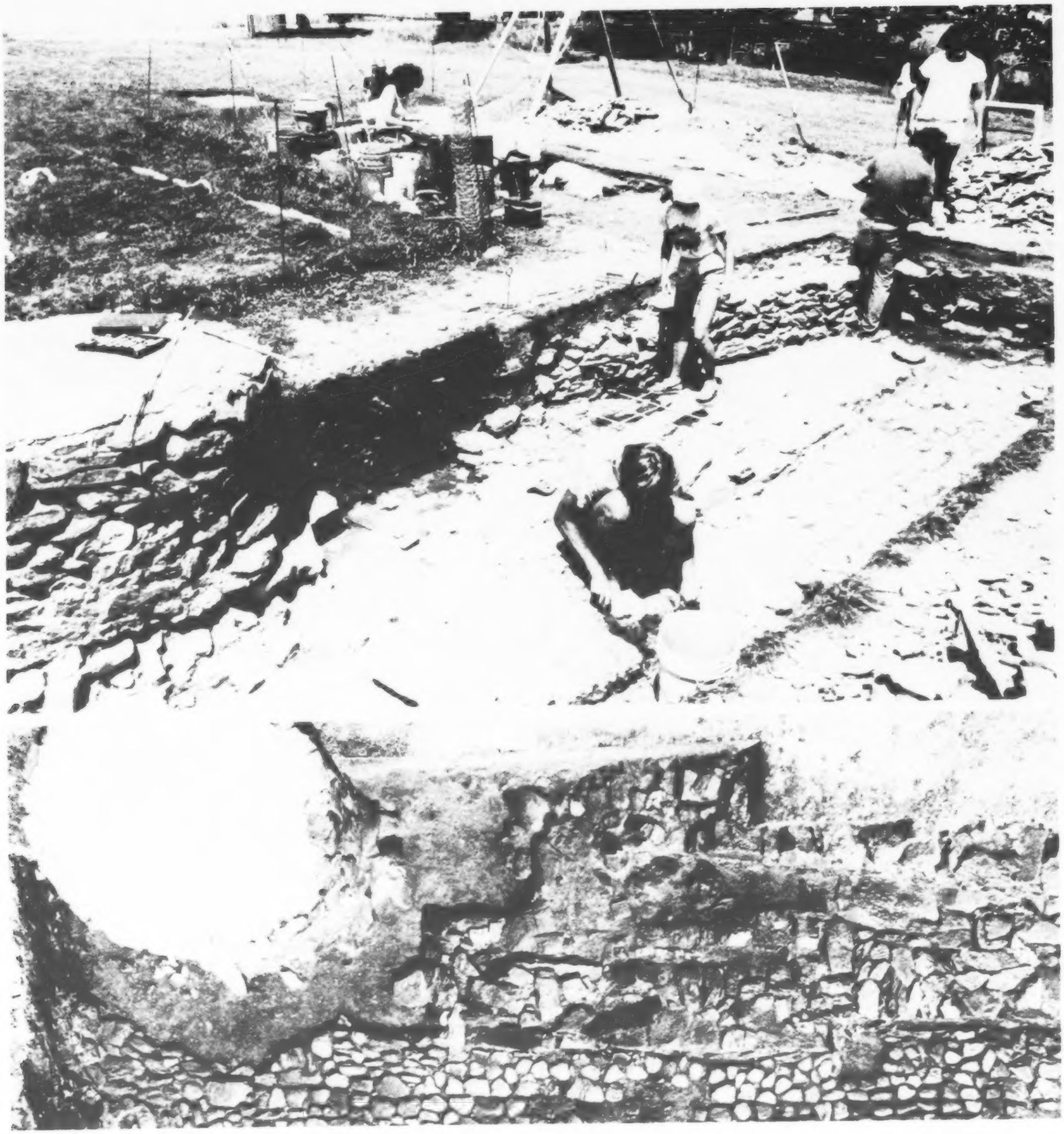


Figure 4.20 Structure 7: excavation in progress, looking northeast (*top*) and aerial view looking north (*bottom*). The builder's trench from the modern "reconstruction" of the well can be seen intruding into the paving, the footings of Structure 7, and the later Wall N, destroying the original stratigraphic context of the well. It's position and construction, however, indicate that it was originally an internal well within Structure 7, D'Aulnay's House.

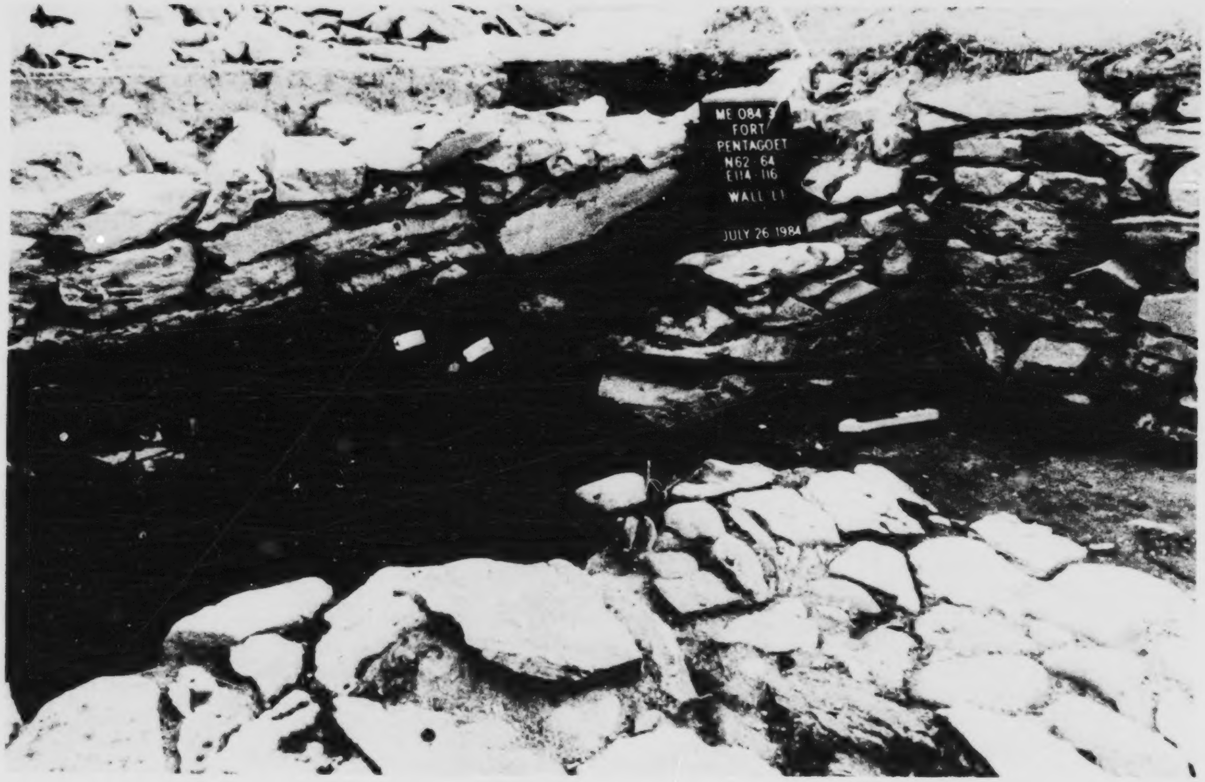


Figure 4.21 Wall L1, the Eastern Curtain, overlapping Wall L2, an extension of the east wall of Structure 2. In the left foreground are the footings which form the southeast corner of D'Aulnay's House, Structure 7. The eastern curtain was built upon a rich kitchen midden which accumulated behind this house. Tags within this refuse mark diagnostic artifacts from Pentagoet I, which, in turn, lie above a redeposited aboriginal shell midden.

were subsequently built upon late in the history of Pentagoet, it seems clear that they were early contemporaries. It is evident in plan view, moreover, that the well encroached upon the foundation of the Structure 7, so that if they coexisted, the well would have had to have been incorporated within the house. This arrangement is a reasonable one: a kitchen with a hearth centered along the southern wall and a well or cistern in the corner, a configuration which appears to have been common in the 17th century.[52] As we have noted in the previous chapter, another indoor well was excavated within Pentagoet's Magazine in 1892.

The identification of Structure 7 as the principal early residence in the fort derives not just from the architectural remains themselves, but also from the refuse associated with the structure, particularly in the vicinity of the eastern curtain. The stone wall here is a rather flimsy affair set directly on the ground with no footings, and covers an extensive kitchen midden—a deposit rich in fish and mammal bone which contains several diagnostic artifacts dating to Pentagoet I (Figure 4.21). It also overlaps the deep footings of the earlier curtain surrounding Structure 2. All descriptions and plans of the fort indicate that this curtain was completed in masonry before 1670, probably as a replacement for an earlier wooden palisade.[53]

The refuse beneath the curtain was part of a midden which effectively surrounded the excavated portion of Structure 7. The highest density was in a ditch between the curtain and Structure 7 which apparently made a convenient dumping site for the occupants of this residence (Figure 4.22). To the south of the building the accumulation was thinner, but richer in artifacts. It extended to the alley between Structures 2 and 7, and even onto a portion of the Smithy floor, where it was intermixed with the workshop refuse. A few isolated items relating to this occupation were

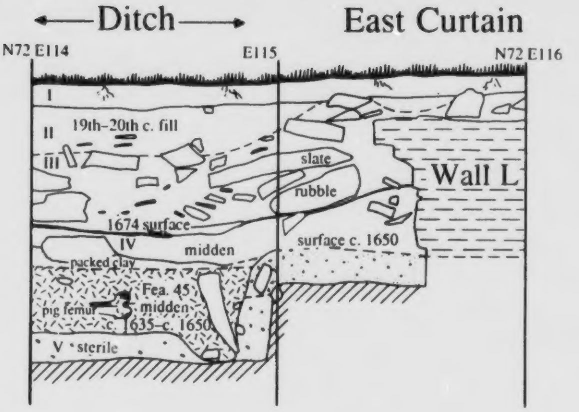
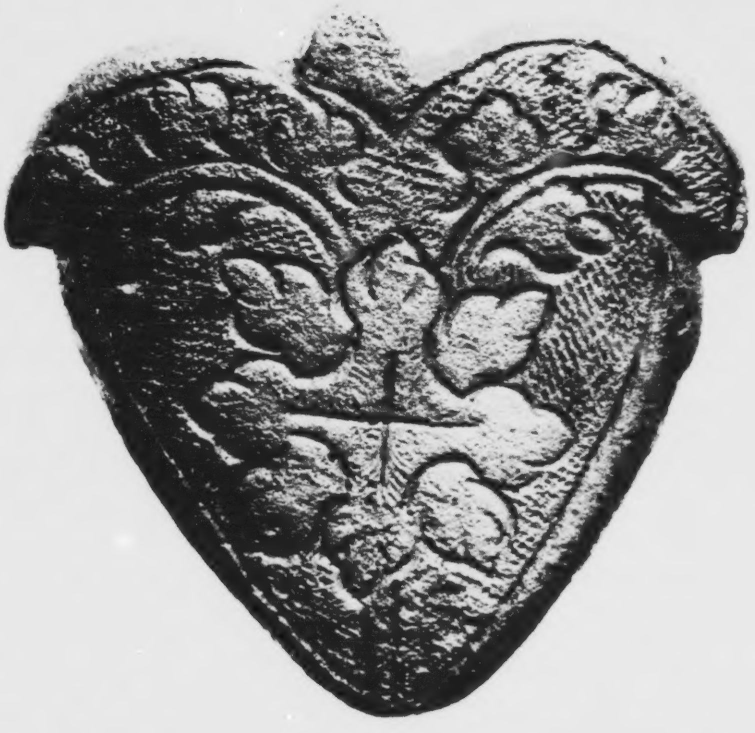


Figure 4.22 (*left*) Stratigraphic section, west to east, across the ditch separating d'Aulnay's house, Structure 7, and the east curtain. Fill within the ditch was a major source of refuse from Pentagoet I, and is interpreted as a dumping ground for refuse from the house. A pig femur protruding from the wall is representative of the extensive accumulation mammal and fish remains found in this context.

Figure 4.23 Acorn-shaped badge found on the floor of the Smithy, which bears a cross and oak leaves—devices which make up d'Aulnay's family crest. The design, which apparently identified d'Aulnay or one of his employees, is engraved on a brass casting. Two heavy prongs on the obverse were apparently crimped to an object at least 6 mm thick, perhaps a heavy leather helmet. (width 4.0 cm)



also found on paving of the courtyard on the opposite side of the house.

This is by far the largest domestic deposit from Pentagoet I, and provides materials which are compared to the contemporary assemblage from Fort La Tour in later chapters. Included within the refuse are numerous artifacts which reveal the high status of Structure 7's occupants: gold braid, a satin ribbon, an officer's epée sling, a sword and scabbard tip, a spur buckle, a polychrome chafing dish decorated in relief, various clasps and baldric buckles, and several pieces of faience tableware. One particular item associates this assemblage directly with Pentagoet's founder. On the Smithy floor, next to pottery sherds which cross mend with the Structure 7 midden, was found a brass badge in the shape of an acorn, engraved with devices found on the armorial crest of Aulnay (Figure 4.23).[54]

Northeast Casemate

Structure 8 was encountered unexpectedly outside the northern wall in tests seeking to define the northeast corner of the fort (Figure 4.24 and Plate 9). Although built at virtually the same elevation as the courtyard, this must originally have been a subterranean structure placed within earthworks, and is interpreted as a casemate or bomb-proof in the northeast bastion. It also apparently served as the underpinnings of a lookout tower indicated on Grandfontaine's pencil sketch of the fort (Figure 4.3 "O").

The masonry of Structure 8 sets it apart from the rest of the fort, and indicates a separate building episode. Its western wall was built largely with rounded fieldstones, a construction inferior to the rest of the fort's coursed slate walls. It is likely, in retrospect, that a small test pit in the northwest corner of the site encountered another casemate, indicated by a similar segment of fieldstone masonry. As these structures are not mentioned in any of the detailed accounts of Penta-

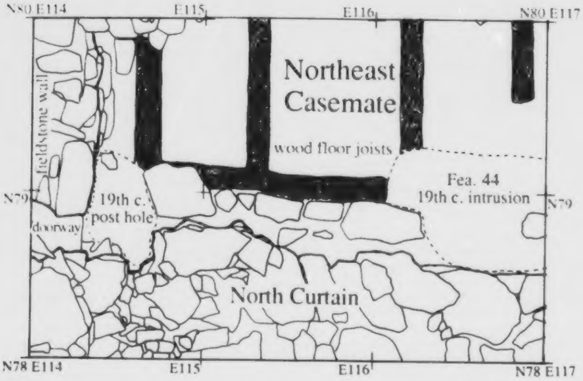
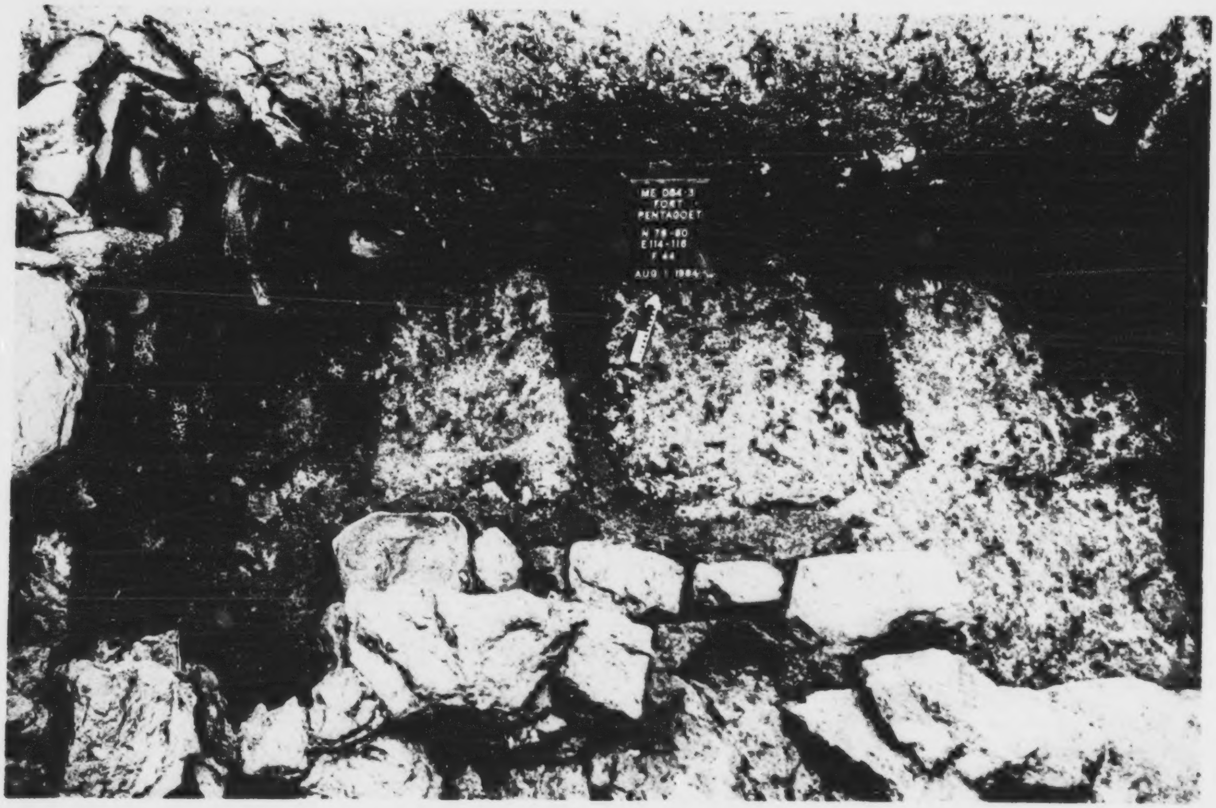

N80 E114
E115
E116
N80 E117
Northeast Casemate
fieldstone wall
wood floor joists
Fea. 44
19th c. intrusion
N79
N79
19th c. post hole
doorway
North Curtain
N78 E114
E115
E116
N78 E117

Figure 4.24 Plan (*left*) and aerial view (*below*) of the northeast corner of the curtain showing a casemate or bomb-proof, Structure 8, lying within the northeast bastion. The masonry of the curtain wall has been heavily damaged by 19th-century intrusions, which also pierce a portion of the casemate flooring. Note the fieldstone construction of the western wall; this masonry has slumped across the entrance to casemate which was located in the western wall, at the lower left. The floor itself is indicated by the rotted remains of sleepers which were originally covered with wooden planks.


ME 084-3
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F 44
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goet's military components written in 1670, they may have been built by Grandfontaine as part of his initial improvements, c. 1671.

Unfortunately the casemate suffered considerable damage from 19th-century intrusions which all but demolished the north curtain and penetrated a portion of its floor. Its shape and dimensions are difficult to estimate, as only a 2 m by 3 m sample has been exposed, but re-examination of ground-penetrating radar data suggests that the structure was probably no more than about 4.5 m square. Artifacts from within this structure, especially tobacco pipe fragments, are rare, indicating that this was not a place where soldiers congregated, but rather a storage area—perhaps a powder magazine. It was clearly wood floored in order to guard against the damp; although the planks have been almost completely burned away, the sleepers on which they rested have survived. Upon this surface is a discontinuous layer of vitrified earth, closely resembling the slag from the Smithy; in this case, however, the cause was apparently the explosion of its stores of gunpowder.

Unexcavated Structures: the Magazine and the Guard House

The layout of Pentagoet is precocious for frontier fortifications of its time in exhibiting apparent bilateral symmetry, although it is unlikely that this principle was upheld in architectural detail. The arrangement appears to be more of a pragmatic attempt at efficient packing of structures within the confines of a square enclosure than an effort to achieve aesthetic balance. Even D'Aulnay's House, apparently built before the rest of the fort, is centrally located on the east side opposite gate. Excluding the Chapel, the buildings remaining within the compound in 1670 are consistently described as two pairs of similar stone buildings, placed symmetrically about a central axis which passes through the entranceway. The current excavations have completely exposed one of each pair, providing a rudimentary framework for understanding the remaining two buildings: the Magazine (Structure 3) and the Guard House (Structure 4).

While the cellar of the Magazine was excavated in 1892, these structures were only tested in the current project to verify their location. These tests indicate that footprints of the Barracks/Workshop complex and the Dwelling do indeed predict the size and placement of their counterparts, the Magazine and the Guard House. Yet in other respects these buildings were no mirror images of each other; just as they varied in function they also differed in form.

The largest of the two structure pairs, the Magazine and the Barracks/Workshop, were listed together as long, narrow buildings of similar size facing each other on opposite sides of the fort. The Magazine was described in 1670 as a very old, two story, stone building, roofed with shingles, and according to the "Act of Surrender," was in need of considerable repair. Each floor was perceived as a separate magazine, and there is no indication that they were subdivided. The two stories probably were built as low as possible to maintain the low profile of the fort, and the second floor magazine may merely have occupied a garret space. This structure apparently stored the trade goods, which were the economic *raison d'être* of the outpost, and the supplies needed to maintain the garrison.

Under the west end of the ground floor magazine, extending for more than half of its length, was a cellar containing a well. When this cellar was excavated for Dr. Wheeler in 1892, he recorded its measurements as 13 ft. by 40 ft. or about 4.0 m by 12.2 m, and some 7 ft. 9 in. or 2.36 m deep—nearly as large as the Barracks and as deep as the cellar kitchen of the Dwelling. It seems likely that this cellar was used for cold storage of perishables for the entire garrison. The semi-circular well, built up against the south wall at the bottom of the cellar, was 26 in. or 66 cm in diameter, and though it was considerably smaller than the well within D'Aulnay's House, it may have provided the principal water supply within the fort.[55]

The Guard House and the Dwelling were a smaller set of stone buildings which flanked the entrance to the fort and supported the timber-framed chapel. There is no suggestion from ground-penetrating radar scans that the Guard House had any lower chamber comparable to the cellar kitchen of the split-level Dwelling. Since the Chapel bridged between them, it is likely that the Guard House was the same height as the north end of the Dwelling, and therefore probably had only one or two rooms placed on a single floor. The placement of doorways reflects the separate functions of the pair; while the Dwelling's sole door provided access to the courtyard, the Guard House doorway, exposed in the excavation of the entrance, allowed sentries to protect the gate.[56]

Construction Details

Though Pentagoet's buildings differ in form and function, and in some cases were modified substantially over the lifetime of the fort, all seem to be products of a single building tradition. In any case, structures of Pentagoet's compound have many architectural features in common. The details of construction addressed here form a basis for comparison with other sites, particularly Fort La Tour, and contribute to the graphic reconstructions of Pentagoet's compound presented below.

Paving

Beach cobbles are abundant along the coast of Maine north of the Penobscot, and are a natural choice for paving materials.[57] As in urban locations, this cobbled surface helped prevent the inevitable quagmire which otherwise would result from heavy traffic within the courtyard and the entranceway. Except for the careful installation of steps and drains, the paving seems to be laid out haphazardly in a patchwork of stones of many sizes set in various orientations (Figures 4.12, 4.16, and 4.25 and Plate 5). Yet the re-

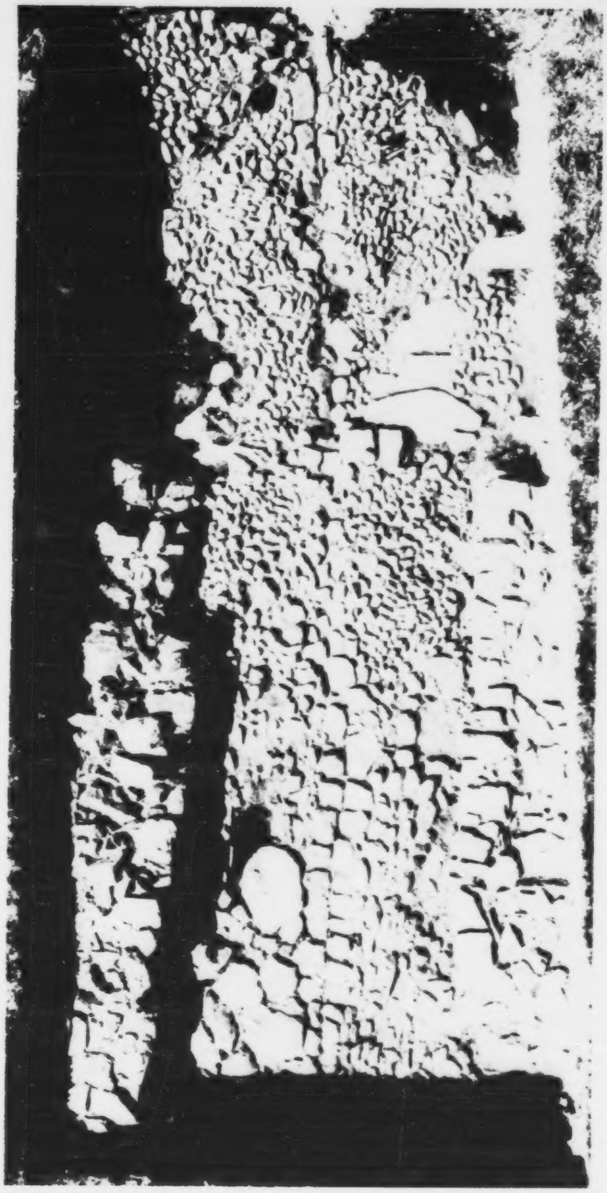


Figure 4.25 Detail of the patchwork of cobble pavement in the apron and entranceway to Fort Pentagoet. The cobblestone paving forms a central drain running westward through the gate and into the adjacent stream (*bottom to top*). A small "redoubt" appears between the inner and outer gates (*center*), delimited by breaks and steps in the paving and gate posts at the ends of the walls.

sulting piecemeal arrangement does not suggest major episodes of repaving, but rather individual loads of cobblestones gathered and installed separately. Unlike masonry, a task demanding great skill and experience, paving was probably a job relegated to soldiers and laborers of varying talents.

By contrast, the drains within the fort seem to have been rather carefully installed, forming a seemingly unbroken pattern which suggests that most of this work was performed over a relatively brief period. They were built of the largest stones, which were set in two parallel strips, their straightest edges arranged along a common central line. The two rows of stones were canted slightly inwards forming a shallow V-shaped channel about 5 cm deep. The drains follow between and along buildings, carrying away runoff from their drip lines, and joining at the entranceway to channel water out of the fort. This drainage pattern demonstrates the considerable cutting and filling which must have occurred in construction of the fort, a re-grading which permitted drainage from east to west, contrary to the general north-south slope of the surrounding land.

Similar paving also occurs in the north compound of Fort La Tour. Although the method of drainage is virtually identical to that at Pentagoet, the paved area is confined to narrow strips which are found only under the driplines of a single building, and empty through a common corridor or passageway leading outside the fort.[58] One implication is that beach cobbles may have been less readily available at the mouth of the St. John, and so were used sparingly.

In spite of the similarity of the drainage systems at the two French sites, beach cobble paving is one of the least diagnostic of all of Pentagoet's structural characteristics. Indeed, this cobbled surface is strikingly similar to the paving recently excavated at Paul Revere's house in Boston.[59] The similarity is less surprising, however, when one realizes that from the late 18th century until the middle of the 19th century, when quarried paving blocks came into general use, Mainers conducted an extensive business in cobblestones, exporting them by schooner to cities on the east coast.[60]

Masonry

A major architectural characteristic which sets Pentagoet apart from contemporary English outposts is the extensive use of stone masonry, not just in the completion of the curtain walls, but in the construction of buildings as well. Until recently, due to a transcription error in the "State of the Fort," the building stone was thought to have been imported from France.[61] Now, however, it appears that the source may have been the Penobscot Formation: slates which run under the Penobscot River, forming its valley.[62] The actual outcrop from which Pentagoet's slate was quarried has yet to be identified, but a few likely candidates apparently have been located near the modern settlement of North Penobscot.[63] It is surprising, therefore, that later English occupants of Castine used fieldstones or locally quarried granite for construction to the exclusion of slate.

Although variations occur in the size range of stones used and the quality of masonry for different applications and separate episodes of construction, the fundamental building

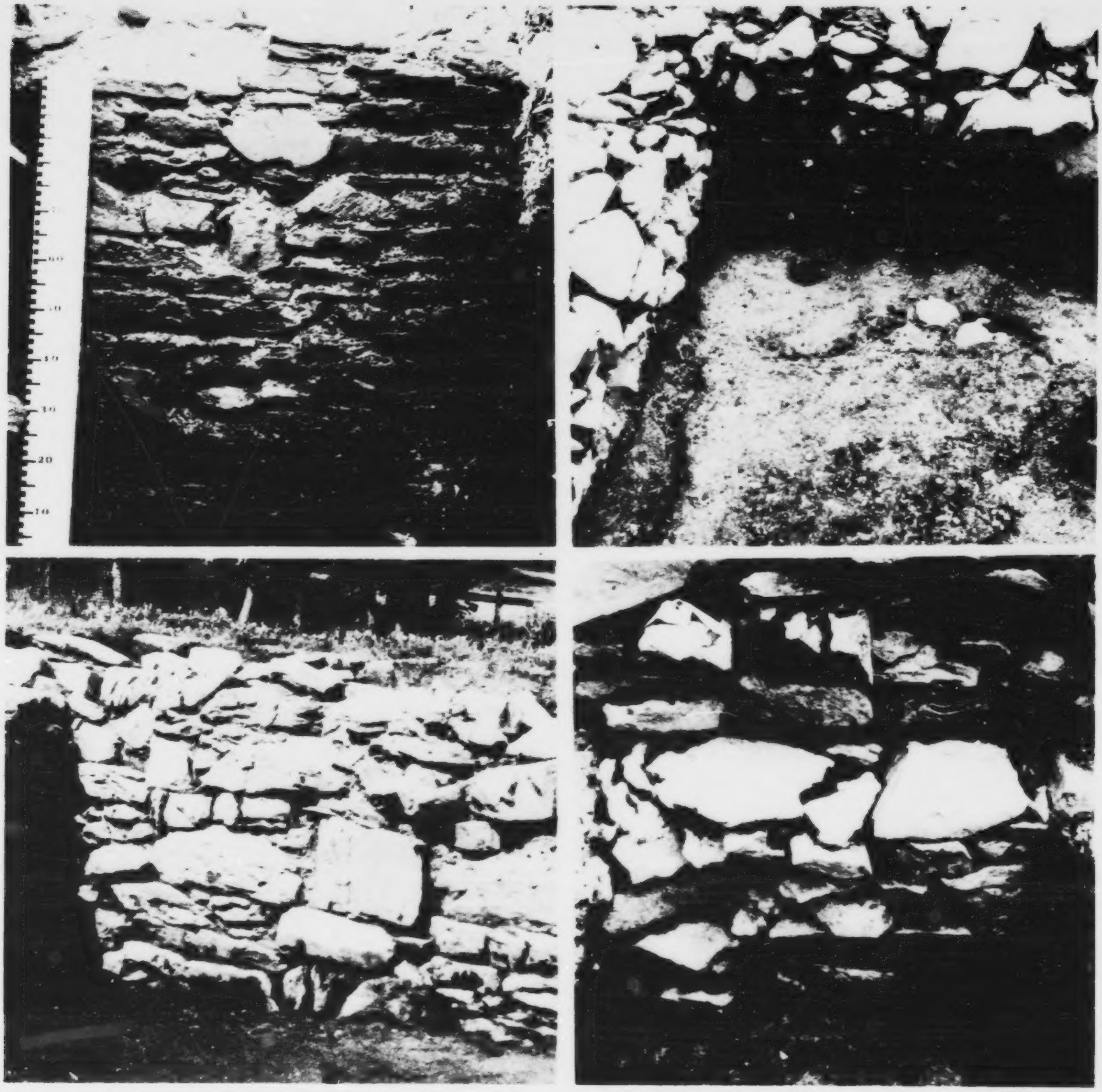


Figure 4.26 Variants of coursed stone masonry within Pentagoet: smooth-finished interior of the west curtain within the cellar kitchen of Structure 1 (*top left*); exterior of the west curtain south of the entranceway, showing the rough masonry originally hidden behind the ramparts and the stub of a post apparently from the outworks (*top right*); finished interior surface of the east curtain within Structure 2.3 and its footings (*bottom left and right*).

technique in each case is the same. As shown in Figure 4.26, the flat slate is expertly laid up in courses. While the narrative of the "Act of Surrender," describes the building construction as being of "hewn stone," the wall surfaces generally are not dressed on the outside as in ashlar masonry. Nevertheless, all exposed faces are flush and smooth, taking advantage of the natural jointing planes in some of the larger stones. The curtain walls and footings have been left rough on those surfaces which would be backfilled or left below grade. Interior partitions and walls lying within the compound range from 51 to 65 cm thick and stand on footings which averaged 75 cm thick. The surrounding curtain walls, which held back the ramparts, were more substantial, ranging from 65 to 90 cm or more in thickness.

In all cases, the stones have been set in a sandy clay loam containing no lime. This mortar, having little bonding ability, served primarily to stabilize and windproof the masonry.[64] As became apparent in the course of excavation, all masonry must have been well covered from above to keep the mortar from washing away in a matter of months.[65] There is no evidence for roughcast or wooden sheathing to protect the exterior of the walls, and the exposed surfaces undoubtedly required periodic tuck pointing.

Tradition was probably as important in the choice of stone over wood for construction as was the desire for permanence or defensive strength. In first generation French settlements this building method was surely a transplant of values from the Old World, where depletion of the French forests had forced builders to use stone rather than wood for wall construction.[66] Pentagoet's masonry is very similar to that known from several 17th-century sites in Canada such as Champlain's Habitation and the Citadel in Québec, and Sainte-Marie among the Hurons in Midland, Ontario.[67] While the types of stone varied according to availability, they were generally tabular materials such as schist, limestone or sandstone which could easily be laid in courses. Even Fort La Tour, which was constructed primarily of wood, had some "shale" masonry which in all major respects was identical to Pentagoet's stonework (Figure 4.27).[68]

While new generations of habitants quickly adopted wood as the predominant building material in New France, the tradition of tabular masonry was maintained for the houses of the wealthy, and in the 18th century it gradually took over as the dominant construction in the largest towns.[69] Thus Pentagoet's construction can be viewed both as a transplant of Old World building practices and as a precursor to a tradition of urban architecture which developed in New France. The building method is characteristically French, and contrasts with the penchant for wood and brick construction in most of colonial New England.

Roofing

The "Act of Surrender" and the "State of the Fort" agree that all of the buildings within the compound were totally or partially "couvert de bardaux," which in the original English version is translated "covered with shingles." These were probably common pine or possibly cedar shakes. The builders may have availed themselves of the larger, clear stock readily available at the time, producing shingles which were broader and longer than those used today and which required fewer nails. None of the these shingles survive archaeologically, but numerous small nails were recovered throughout the excavation.

An alternative roofing technique is suggested by descriptions of a barn for livestock which lay across the stream to the east of the fort, outside the excavation area. While the "Act of Surrender" describes the barn as built of planks and half covered with shingles, the same structure is "à moitié de

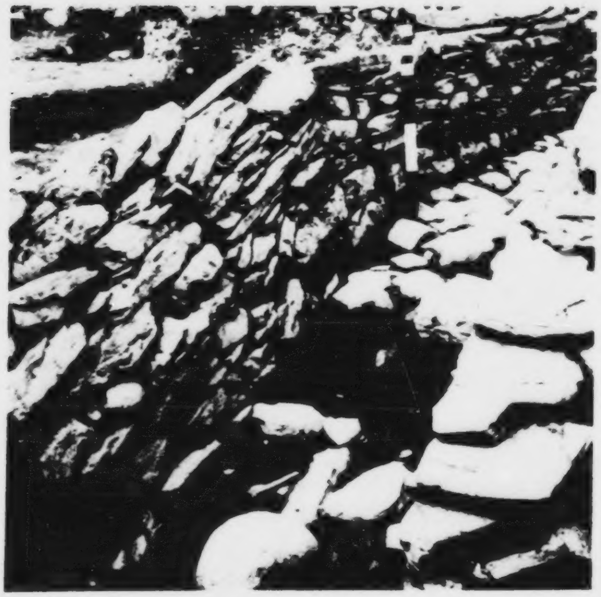


Figure 4.27 Corridor or passageway at Fort La Tour 2, ca. 1640–1645, showing tabular "shale" laid up in a "fine red mortar." (courtesy of Norman F. Barka)

planches," or half-planked, according to "The State of the Fort." The latter description may indicate overlapping boards running parallel to the eaves, which became a common roofing technique in rural New France and is known as "planches chevaucheés."[70]

The only direct evidence for roofing at Pentagoet was straw or grass thatch, which was found poorly preserved along the east curtain north of wall N in deposits of late Pentagoet III date. The thatch was apparently bundled with double stranded cord ties, and may have roofed a structure represented by wall N. Thatched roofs were in general use in 17th-century New France, where they covered all types of buildings: dwellings, stables, hay barns, sheds, hen houses, etc.[71]

A painting of Château-Richer in the late 18th century shows the variety of roofing used for farm buildings in the St. Lawrence valley: thatch, "planches chevaucheés," and common shingles.[72] Similarly, construction at Pentagoet may have employed a number of different roof types for one purpose or another. Whatever the technique or material, these steep-pitched, 17th-century roofs must have had long eaves extending well past the walls in order to protect the mud-mortared stonework.

Fireplaces

Pentagoet's builders used slate masonry not only for walls, but also for all aspects of fireplace construction. Five hearths were exposed in the excavation of Pentagoet, two each from the Dwelling and the Barracks/Workshop complex and one from D'Aulnay's House. In no cases were the chimney bases free standing, as is commonly the case in English construction, but rather were incorporated into the wall of a partition or into the surrounding curtain. Even D'Aulnay's House, the only free-standing building within the fort, apparently incorporated the chimney flues within its southern gable end. Making the stone masonry serve double duty as wall and heat source was a well-conceived strategy in view of the considerable investment in labor inherent in building with stone.

The main hearth of the Dwelling, Structure 1, is typical both of the Pentagoet hearths, and of 17th-century French architecture in general (Figure 4.28). On both sides are footings for small pilasters—supports for a hood which flared out over the fireplace. There was, therefore, no firebox recess; rather the fire was built on the open hearth. Smoke was drawn up through the hood and into a masonry chimney flue incorporated into the wall.[73] All other fireplaces at Pentagoet exhibit similar pilaster footings with the exception of the fireplace of the remodeled Barracks, which was apparently the last to be built. The hood in this case was probably supported by brackets extending from the wall, a popular alternative construction technique. The flues themselves were probably quite broad, as it was standard practice for the chimney sweep to climb directly into them.[74]

The integrity of these elements of fireplace design is evident in the best preserved chimney base at Fort La Tour (Figure 4.29). This hearth area shows a great similarity to Pentagoet's fireplaces in its construction, even though it was built as a free-standing architectural element within a timber-framed structure. Here the chimney base appears to have been constructed as a section of "wall" with a hearth built up against it, in the same fashion as at Pentagoet. An abnormal projection on the left side of the hearth suggests the remains of a pilaster footing, the rest of which may have been removed inadvertently during excavation.[75]

The well-worn state of all of the fireplaces at Pentagoet

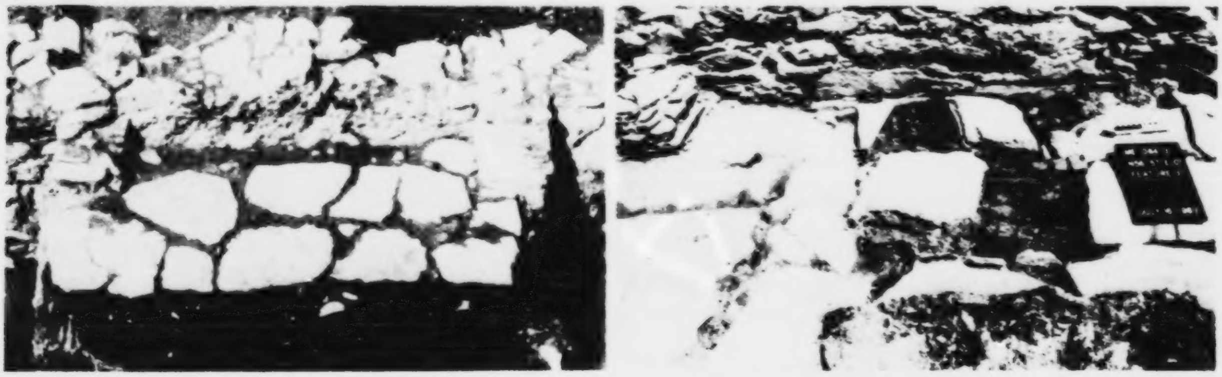


Figure 4.28 Hearths at Pentagoet. The fireplace of the main room of the Dwelling, Structure 1.2, (*left*) has two pilasters which supported an overhanging hood. A single pilaster, marked with a tag, remains at the fireplace of the Officers' Quarters, Structure 2.1 (*right*). This fireplace stands back-to-back with the forge of the adjacent Smithy, Structure 2.2. The only bricks excavated from 17th-century contexts at Pentagoet appear in a central block within this hearth, where they may have served to retain heat for cooking.

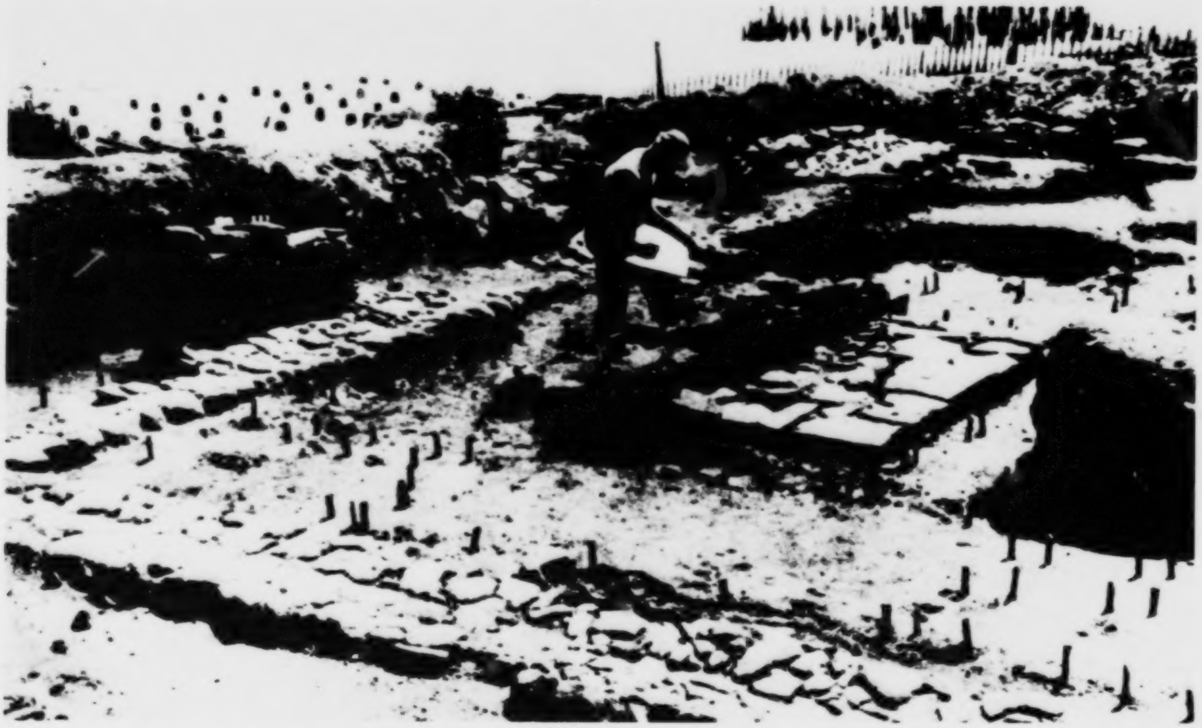


Figure 4.29 Free standing hearth within Structure 3 of the north compound at Fort La Tour. The surrounding strips of cobble paving are drains beneath the drip lines of the wooden structure. (courtesy New Brunswick Museum)

indicates many seasons of heavy service.[76] Fires had burned the back surface of the main fireplace of the Dwelling to flakes and powder, forming a considerable cavity in the curtain wall. To reduce further damage, new pieces of slate were placed upright against the wall to serve as a fireback.[77] Similar signs of deterioration appear in the hearths of D'Aulnay's House and the later of the Barracks fireplace. The slate fireplace in the Officers' Quarters (2.1) apparently is a replacement for an earlier hearth, indicated by a dense lens of red clay loam remaining beneath.

The hearth of the Officers' Quarters is unusual, for it contains an 80 cm square insert of red brickbats set in the middle, perhaps signifying a special cooking surface, or a repair (Figure 4.28). Surprisingly, other than this small patch, bricks are unknown in the construction of the fort, even though Pentagoet's mortar and plaster is made up of exactly the same constituents as brick clay. It would appear, then, that the French did not fire their own bricks, and may have salvaged these few pieces from some English structure.

Interior Walls

On the interior surfaces of the more comfortable living areas, the stone walls were insulated by a covering of mud plaster held in place by lath. In the Officers' Quarters, huge spikes up to 22 cm long were found in vertical rows driven into the masonry at approximately 1.2 m intervals (Figures 4.30 and 4.31). These evidently held large furring strips to which, it is presumed, some form of lath was fastened. This wood and stone surface was plastered with a clay loam daub similar to the mortar used for the masonry. In the destruction of Pentagoet, this daub burned red like a brick, and still survives at the site in great quantities.

Strange though it may seem, no binding agent such as grass or straw was used in the daub, and the surviving fragments crumble readily. Only a few pieces of daub are large enough to show any architectural details, and most of these show impressions of the masonry. The rare interior surfaces represented show inside and outside corners, suggesting that doorways and fireplace hoods were finished with this covering. Fired daub accumulations were usually greatest at the edges of the walls, but they generally continued into the center of each structure as well. This presents the possibility, albeit unlikely, that ceilings may also have been plastered.

The cellar kitchen of the Dwelling (1.1) shows the greatest accumulation of daub and charcoal of any area in the

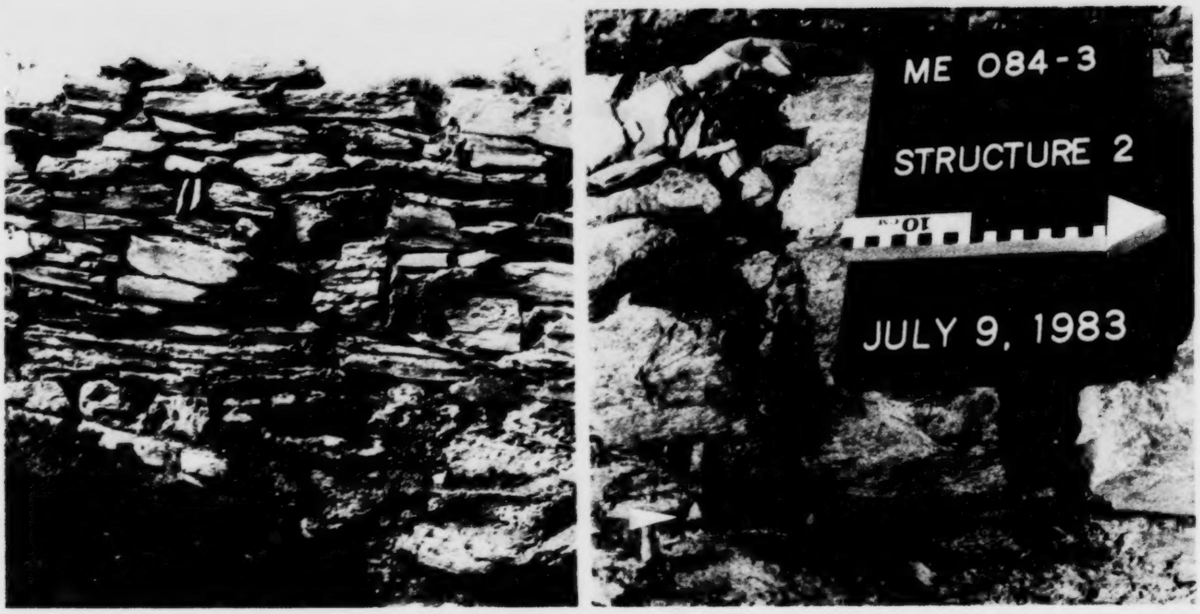


Figure 4.30 Spikes, found in the masonry of the west end of the Officers' Quarters, Structure 2.1. Several spikes were apparently arranged in vertical rows and apparently held furring strips to support lath covered by a daub plaster.

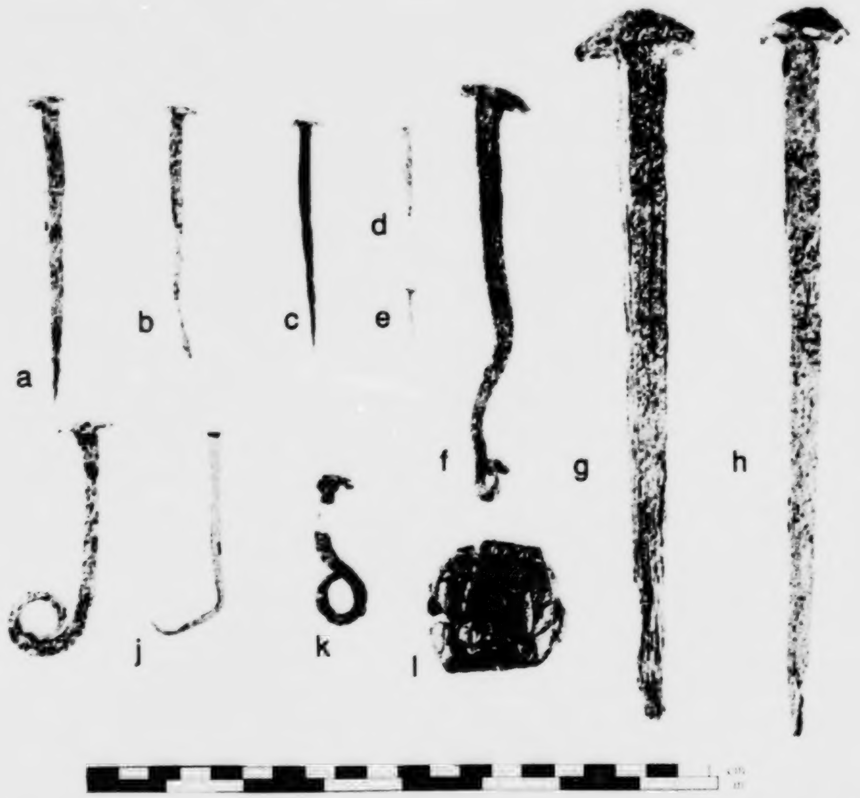


Figure 4.31 Hand forged nails and spikes from Structures 1 and 2 at Fort Pentagoet. Specimens *g* and *h* held furring strips in the Officers' Quarters (2.1), while specimens *f*, *i*, and *k* apparently held interior lath or sheathing to the masonry of the cellar Kitchen of the Dwelling (1.2). The spike head *l*, seen from its under side, was cut off at the anvil hardy.

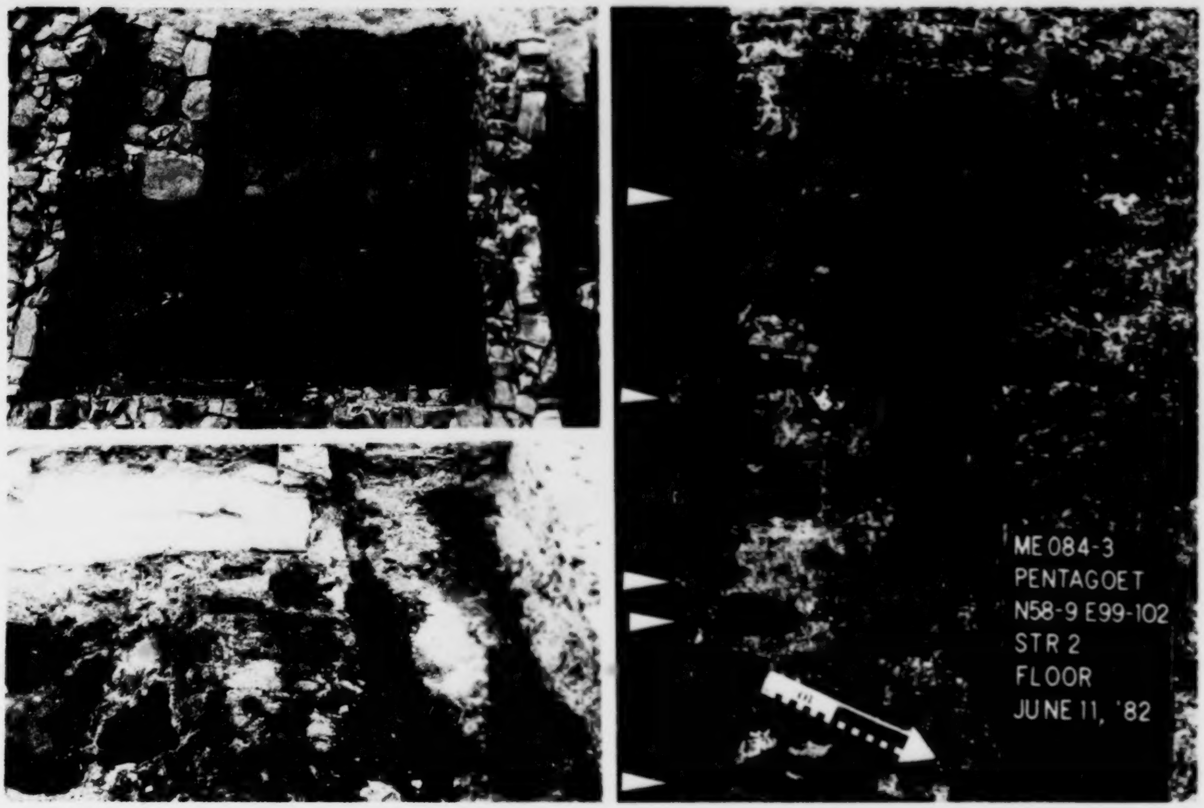


Figure 4.32 Wood floor construction of the Officers' Quarters, Structure 2.1, (*top left*), and the main room of the Dwelling, Structure 1.2, (*lower left*). Floor joists or sleepers, which have long ago decayed, appear as depressions. A detail of the floor of the Officers' Quarters shows individual planks, and a row of badly corroded of nails which held them to a sleeper joist (*right*).

site, the combined debris reaching a thickness of 82 cm in the center of the room. The daub and charcoal lenses are interpreted as the remains of the ceiling of the kitchen as well as the floor, ceiling and roof of the chamber above. The masonry walls of the cellar kitchen were also studded with nails, but these are much smaller than the spikes from the Officers' Quarters and measure only 9 cm or less in length. Several of the nails missed the joints in the masonry and have curled on impact with the slate (Figure 4.31*i,k*). In this case, furring was probably omitted, and broad strips of lath were nailed directly to the walls. Alternatively, the walls below grade may not have been daub covered at all, but merely sheathed with boards.

Flooring

Floors in the Officers' Quarters (2.1) and the main room of the Dwelling (1.2) had been planked with wood, and the individual floorboards were still discernible upon excavation (Figure 4.32 and Plate 7). These planks were broad, but varied considerably from about 30 cm to 50 cm in width. They were nailed to wooden sleepers which are now evident as depressions in the flooring studded with lines of heavily corroded nails. These sleepers were laid directly on the ground at right angles to the fireplace at intervals of approximately 90 cm. Although its planking has been almost completely burned away, it is clear that the shallow Northeast Casemate was similarly floored, perhaps to keep kegs of gunpowder

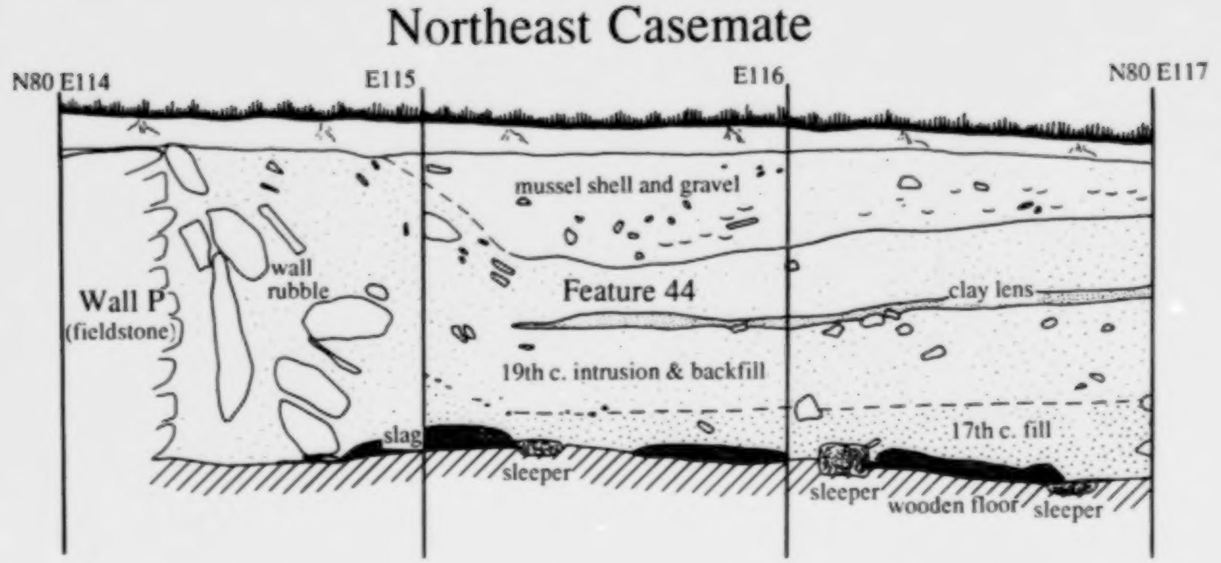


Figure 4.33 Section across the northeast casemate or powder magazine, showing typical floor construction at Pentagoet. "Slag" on the floor appears not to be the by-product of smithing, but rather the explosion of stores of gunpowder, which apparently vitrified the surrounding earth.

dry (Figure 4.33).

For other locations, it is sometimes difficult to distinguish scraps of wood which may have been used as makeshift flooring from the charred remains of a building's superstructure. The cellar kitchen of the Dwelling may have had occasional pieces of wood on the floor, but for the most part it was earthen floored and this surface was apparently renewed periodically with sandy loam. The rebuilt Barracks remained earthen floored like the work areas it replaced, though it too may have had occasional planks in key areas. Very little of the floor area of D'Aulnay's House has been uncovered, but it is apparent that the area surrounding the hearth was flagged with slate, a construction practice evident in portions of Fort La Tour as well.[78]

Doors, Windows, and Their Hardware

Details of framing and fenestration are best represented by artifacts, particularly wrought iron fastenings and fittings. Unlike features, which often show vestiges of earlier configurations, the distribution of these artifacts generally represents the arrangement of the fort as it stood in 1674 (Figure 4.34). Apart from a few items recovered in the refuse of the earlier Smithy (2.2), which are unrepairable items or fabrication scraps, most of these specimens lie near where they fell at the demolition of the fort.

The regular distribution of structural hardware is clearest for door fittings. In the Barracks/Workshop, all three exterior doorways show clusters of appropriate hardware—strap hinges, pintles, latch catches, and even keys. Door latch hardware, found on the hearth within the Barracks, suggests the location of an interior door, perhaps located on a second story. In the Dwelling, door fittings help define the location of its entrance, which, as we have noted, was obliterated by 20th-century drain construction. In this case, the pintles remained more or less in place, adjacent to the east wall, while the strap hinges, which were firmly attached to the batten door with clinched nails, fell inwards when the door collapsed or was broken in. A similar fate appears to have befallen the cellar door; its lower hinge and pintle remained in place in the masonry at the bottom of the stairwell, while

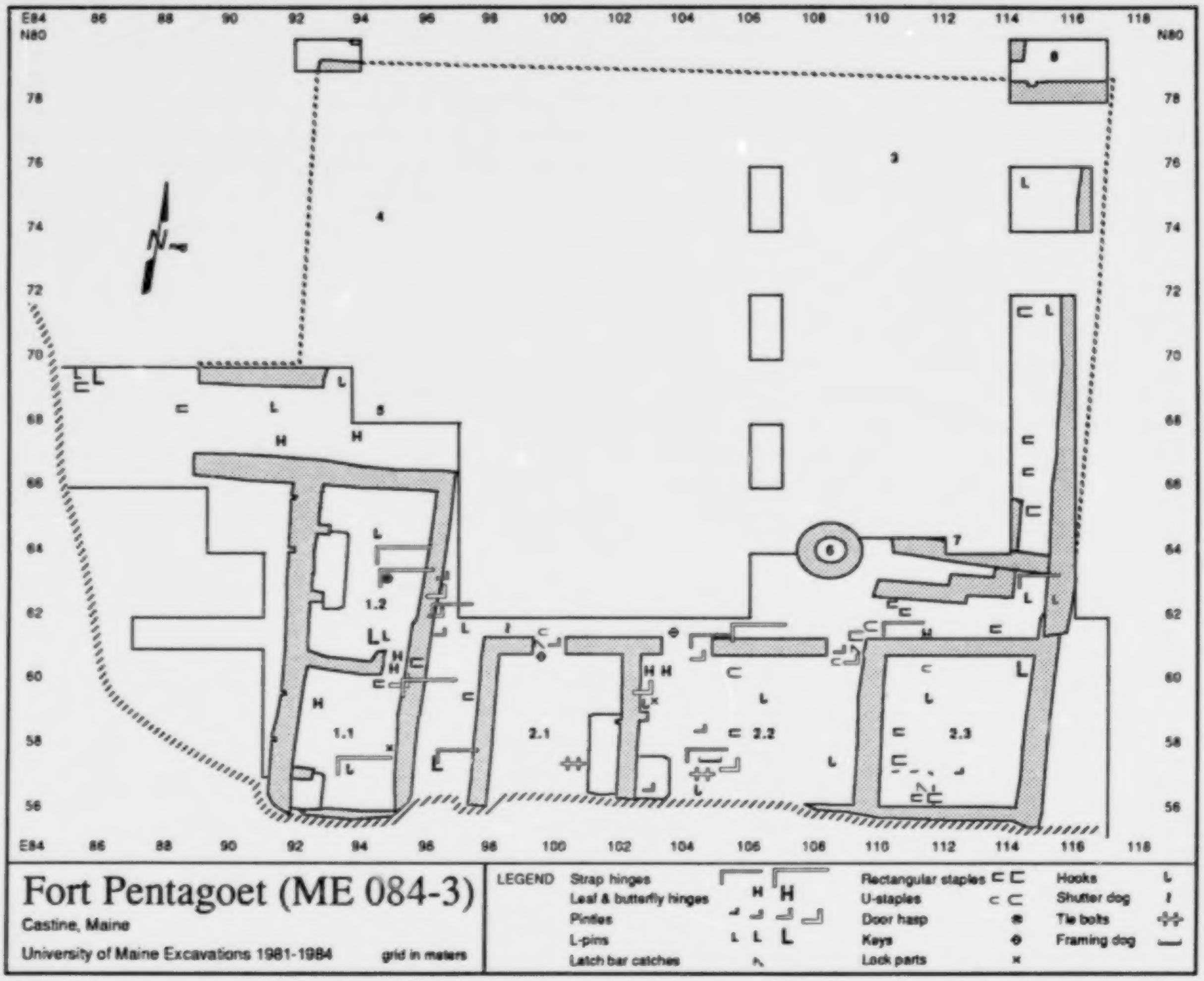

Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND
Strap hinges
Leaf & butterfly hinges
Pintles
L-pins
Latch bar catches
Rectangular staples
U-staples
Door hasp
Keys
Lock parts
Hooks
Shutter dog
Tie bolts
Framing dog
E84
N80
1.1
1.2
2.1
2.2
2.3

Figure 4.34 Distribution of structural hardware. The magnitude of each icon represents the relative size of specimens. Note the clusters of pintles, strap hinges, catches, and related door hardware about doorways and the forge.

the fragmentary upper hinge was found in the middle of the room.

The striking characteristic of these artifact clusters, however, is that they are incomplete, and much of the more valuable door hardware has been scavenged. Iron catches and staples indicate that these doors were originally outfitted with latch mechanisms, probably similar mechanically to the "Suffolk" or "bean" type latches common on contemporary English sites.[79] But the most complex parts of the latch mechanism—the grasp and thumb-press on the door front, and the latch bar on the back—are missing in all cases. Several of the staples or drop bar guides show evidence of having been pried from the doors in order to remove the rest of the mechanism. Other simple fastenings, particularly door

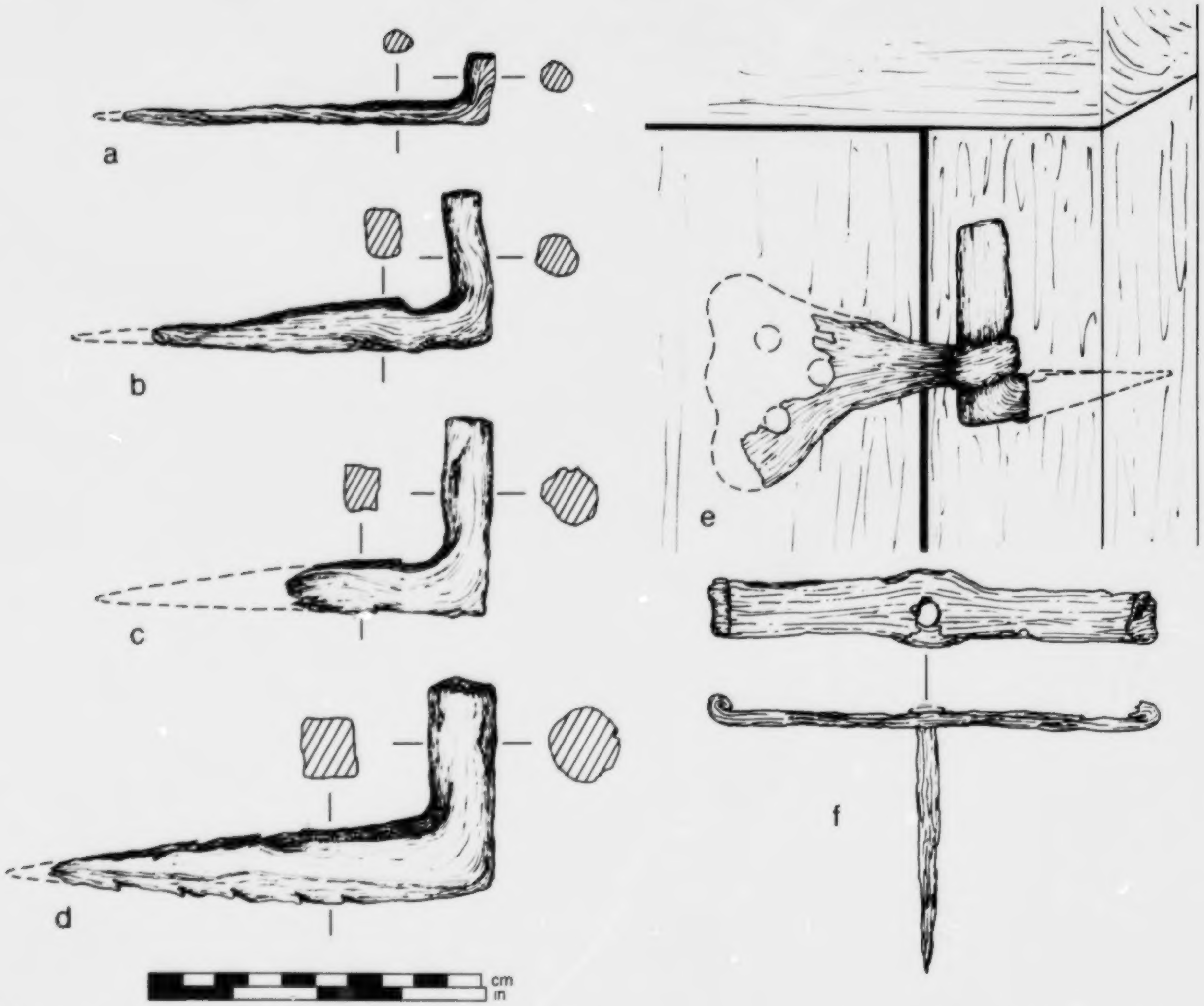


Figure 4.35 L-shaped pintles, and shutter hardware: *a–d*, four sizes of pintles, the male part of Pentagoet's door and shutter hinges, arranged by pin diameter; *e*, side hinge probably used on shutters and casement windows; *f*, dog or keeper used to hold back shutters.

hinges, were probably left behind in the rubble because it was not worth the effort to remove them. This salvage operation was recorded by the Dutch captors of Pentagoet who complained in 1675 that the residents of Pemaquid, along with several English fishermen, came to Pentagoet and "did… Break. vpp: the Plankes of our Demolished ffort and Gott y^{e} Ironworke and Speikes, & carried them away."[80]

Most of Pentagoet's doors and shutters, and possibly casement windows pivoted on pintle hinges. The male part of the hinge was a common, right-angled pintle, designed to be driven like a spike into a wood or masonry jamb (Figure 4.35). Each pintle was made from a single piece of square bar stock. The shank was tapered to a point, much like a hand wrought spike, and in some cases was nicked with a

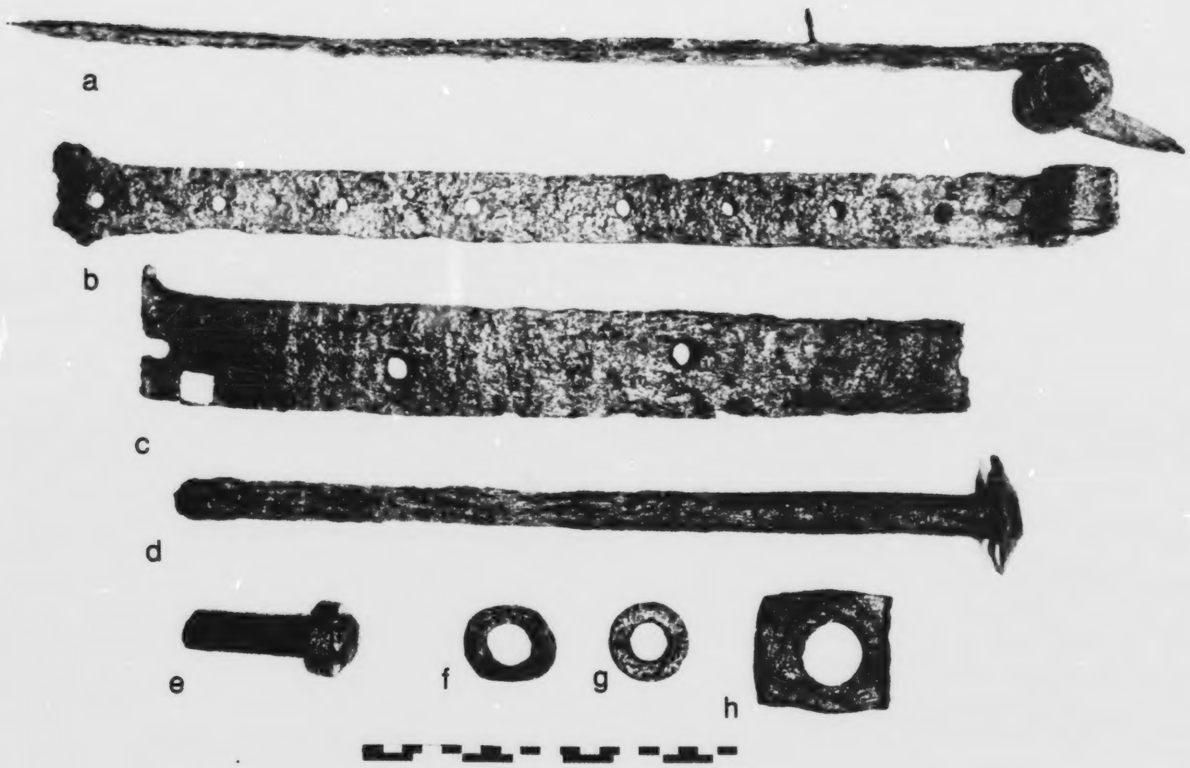


Figure 4.36 Large strap hinges (*a–c*), tie bolts (*d–e*), and washers, (*f–h*). The strap hinge *a* was found with its pintle, and was still mounted in the masonry at the bottom of the stairwell to the cellar kitchen of the Dwelling, while the nearly identical specimen *b* apparently belongs to the the front door of this same building. The tie bolts, which had keyed shafts, were apparently used to reinforce timbers in the area of the chimney of the Officers' Quarters.

chisel to make small barbs which helped secure it in wooden jambs.[81] The pin end was then swaged round to a size which would mate with the female part of the hinge or "gudgeon." In forming the angle, the smith hammered the metal around the outside of the elbow, thus thinning and stretching it to negotiate the bend. As is apparent from the range of sizes of the finished product, these hinges had various applications in fenestration.

Two forms of the female part of the pintle hinge are represented at the site. The most common is the ordinary strap hinge, represented in Figure 4.36*a–c* and Figure 4.38*a–b*. Such hinges served not only to hang, but also to bind together the batten doors to which they were attached. The long straps have very simple terminals of forms which are common and stylistically unremarkable. As is nearly universal for this type of hinge, the holes in the strap are spaced closer together near the gudgeon, which bears the weight of the door. The various sizes of these strap hinges suggest that they were used for everything from heavy entrance doors to small shutters.

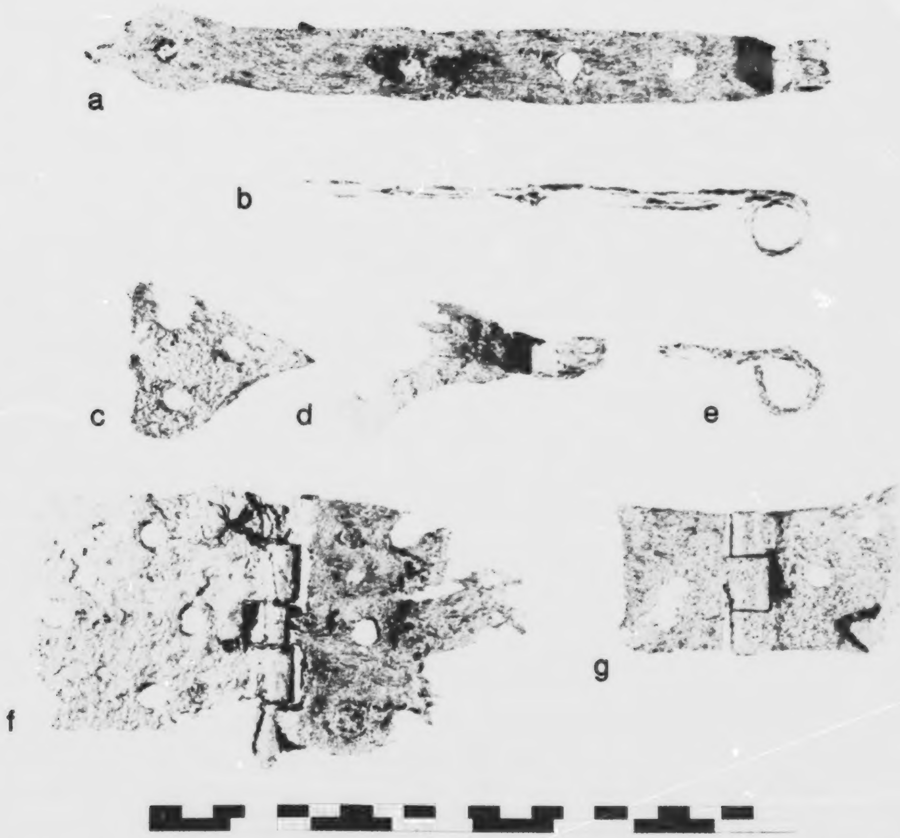


Figure 4.37 Small door hinge types: small strap (*a–b*), side (*c–e*), and leaf (*f–g*). The gudgeons or eyes of both strap and side hinges are not welded, but are formed merely by wrapping them around a mandrel.

The second type is a simple side hinge, a form popular in continental Europe.[82] The flared leaf of the gudgeon resembles half of a butterfly hinge, Figure 4.35*e* and Figure 37*c–e*. This design is restricted to lightweight applications as it attaches only on the jamb side, and does not bind the door or window together. It is particularly well-suited for frame as opposed to batten construction, and would have been appropriate for hanging casement windows.

The gudgeons of both types of pintle hinges are formed by wrapping them around a mandrel, and are not welded. Wrapped gudgeons are simpler and easier to fabricate than those which are formed by folding the strap back on itself around a mandrel and welding it. Such wrapped gudgeons are common on colonial sites through the early 18th century, and occur in moderately high style village architecture as well as at frontier outposts.[83]

Three true leaf hinges were also found. One set, Figure 4.37*f*, came from the cellar doorway of the Dwelling, and may have been fitted to a trap door covering the stairwell. The remaining specimen, much smaller, came from within the barracks where it may have been attached to a cupboard or wardrobe door.

Only two parts of the latch mechanisms used at the fort were recovered: staples or latch bar guides, and latch catches.

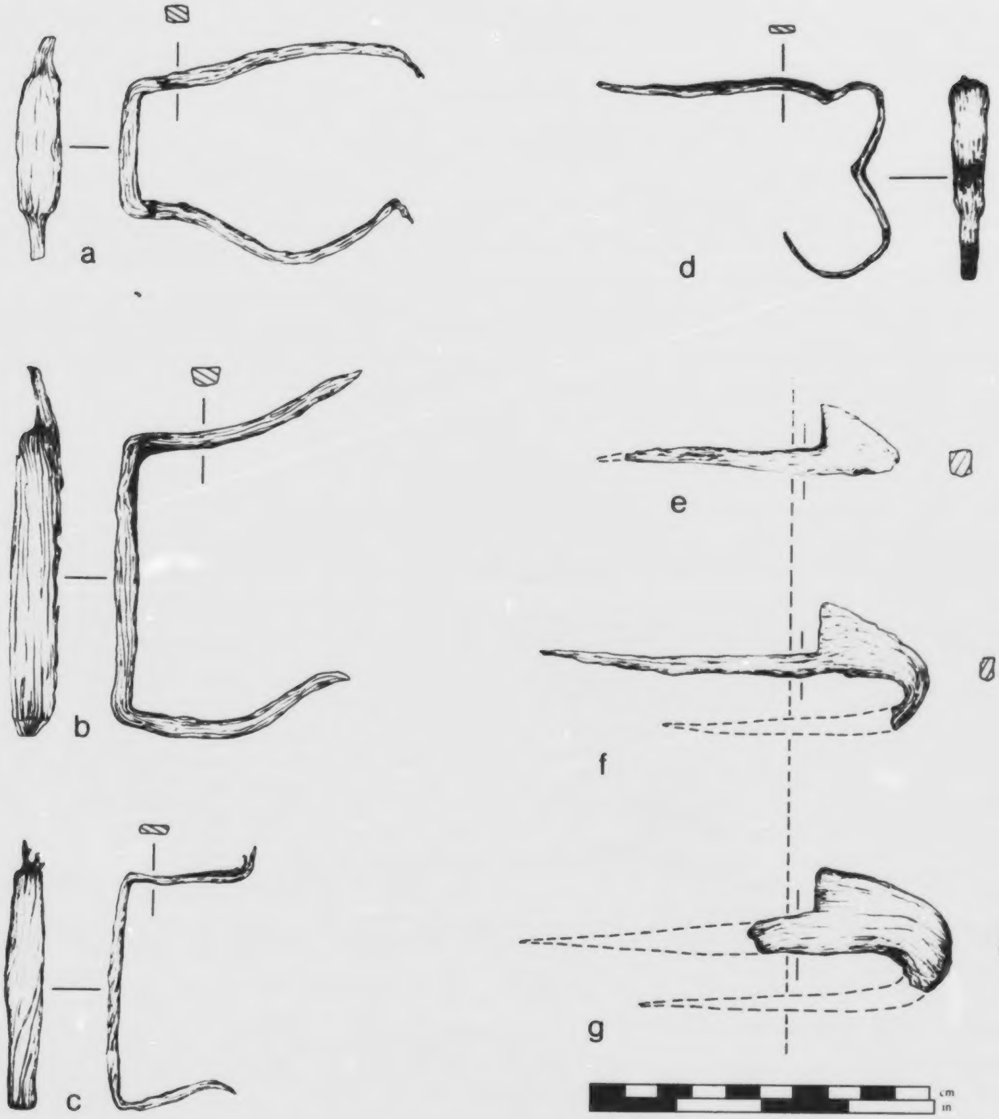


Figure 4.38 Door latch parts: *a–d*, rectangular staples/latch bar guides; *e–g*, door latch catches. Note that the staple *d* has been been turned inside out.

Surely not all of the rectangular staples shown in Figure 4.38 are latch parts, but some must have retained the latch bar as it rose and fell while engaging the door catch.[84] Several, such as the specimen in Figure 4.38*c*, show evidence of having been driven through a door about 3 to 4 cm thick, and clinched on the other side. Thus securely fastened, many were severely distorted beyond reuse when they were forcibly removed; the specimen in Figure 4.38*d* has actually been turned inside out.

The door latch catches are virtually identical to specimens from early 18th-century French structures at Fort Michilimackinac. Two of the catches are of a U-shaped, staple-like form; the two prongs anchor the catch vertically in the jamb so that it cannot turn (Figure 4.38*f–g*). The third, Figure 4.38*a*, is of a simpler single post design. At Fort Michilimackinac, these catches are associated with Suffolk-type latches.[85]

Security was certainly a major concern on the Anglo-Acadian frontier, and the principal structures at Pentagoet were probably all fitted with locks. Like the door latches, these locks were apparently salvaged, leaving only sparse evidence behind.[86] A keyhole escutcheon was recovered near the Barracks hearth, where it may have been fitted to a stock lock on an interior door. A broken stocklock bolt was also found nearby in the Smithy, where it appears to be a repair scrap. Remains of a complete stock lock were found in the cellar kitchen of the Dwelling, but the specimen was too fragmentary to reconstruct.[87] Several such locks were in use at Pentagoet, for large keys were recovered from the doorways of the Officers' Quarters and the Barracks (Figure 4.39*a–b*). These were hollow shanked keys with intricate bits, designed to negotiate the many wards of rather complex, and expensive mechanisms.[88] Why the keys were not carried off with the locks is something of a mystery.[89]

A less rigorous means of security is reflected by a hasp on the front door of the Dwelling. This closure pivoted on a driven eye, and apparently engaged a round wire staple (Figure 4.40). The hasp could have been secured with a padlock from the outside, but may have been closed more casually, using a simple wooden peg.

While the placement and structure of doors is compara-

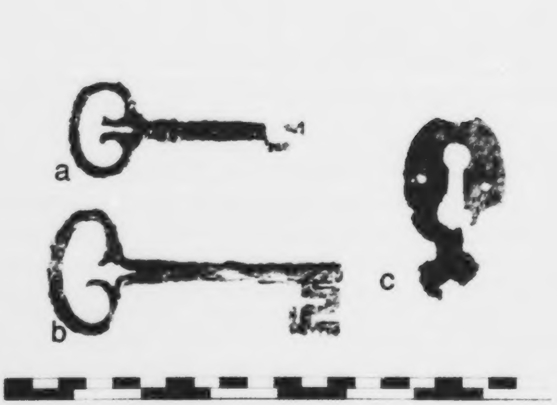


Figure 4.39 Keys and escutcheon: (*a–b*) keys to multi-warded door or possibly chests locks, found in the doorways of Structures 2.1 and 2.2; *c*, keyhole escutcheon found on the Barracks hearth, in association with both chest and door latch hardware.

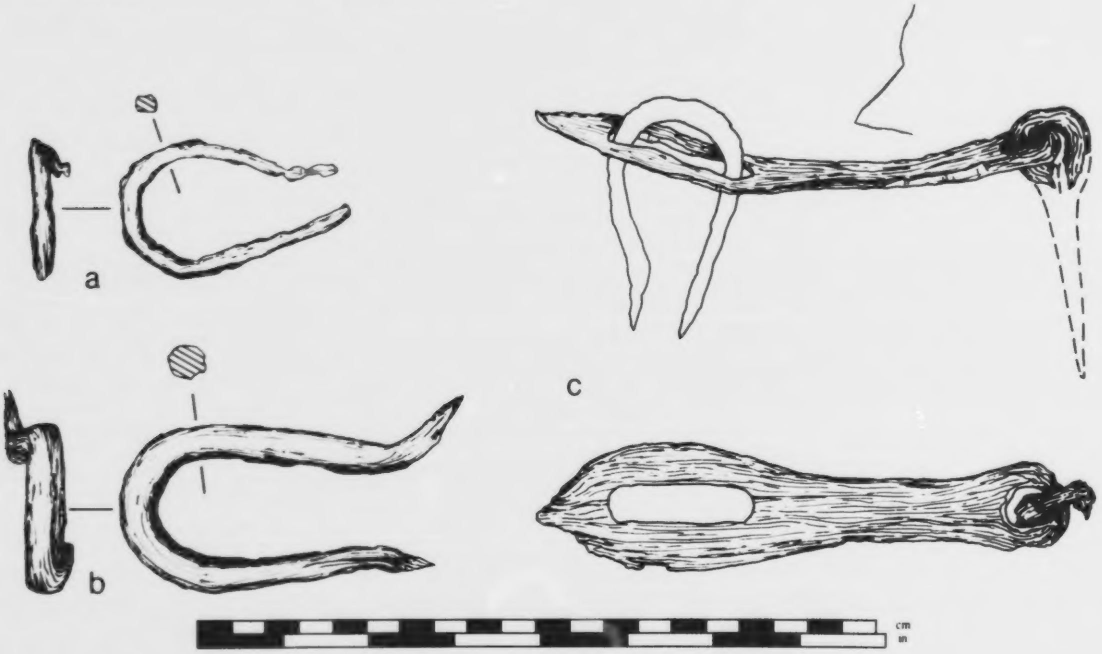
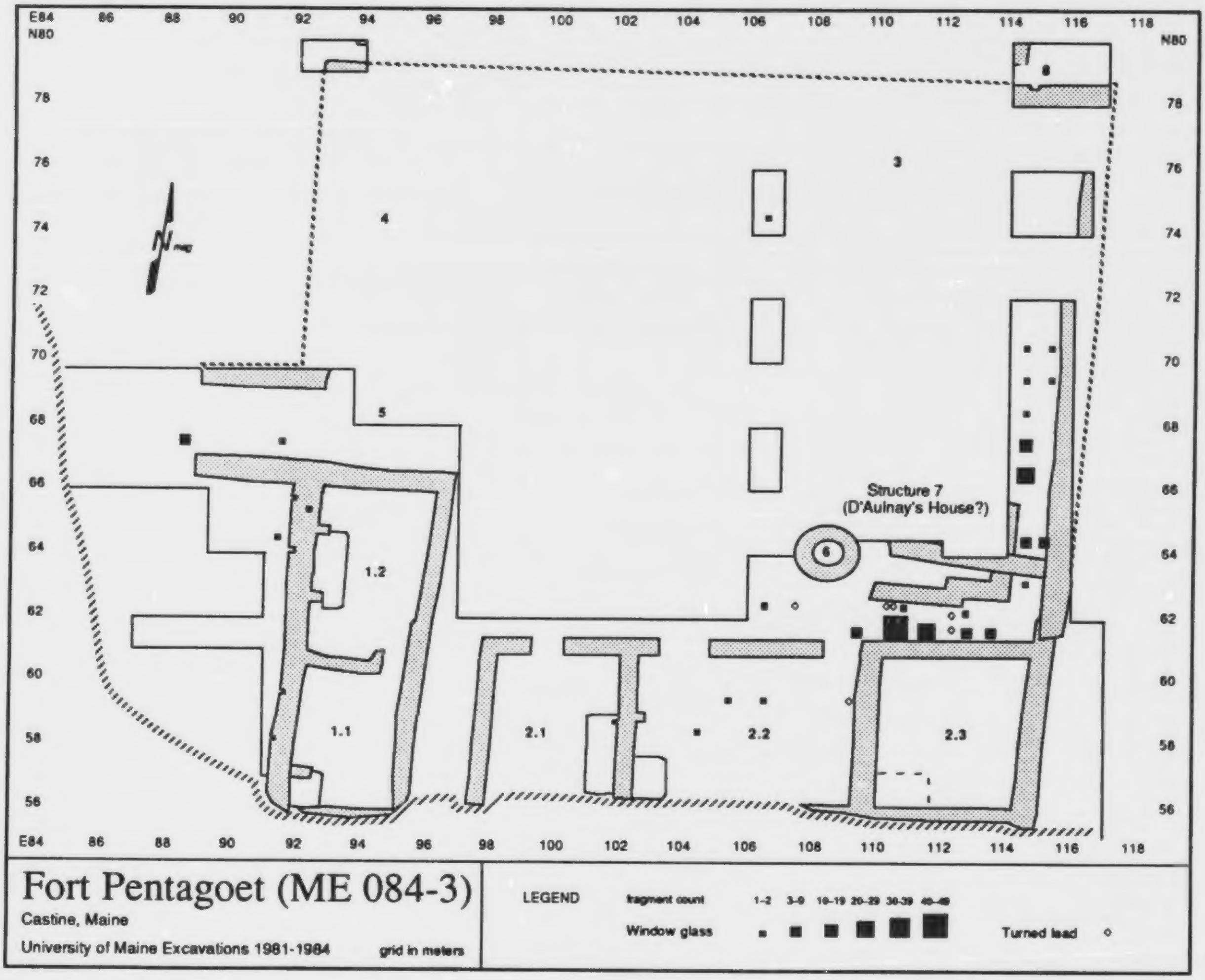


Figure 4.40 U-staples (*a–b*) and hasp (*c*). The hasp, found within Structure 2.1, was apparently affixed to the outside of the Dwelling's exterior door.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60
58
56
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mag
3
4
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8
1.1
1.2
2.1
2.2
2.3
Structure 7
(D'Aulnay's House?)
Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND
fragment count
1-2
3-9
10-19
20-29
30-39
40-49
Window glass
Turned lead

Figure 4.41 Distribution of window glass and turned lead. Note the overwhelming concentration of these remains around D'Aulnay's House, Structure 7.

tively well understood, less is known about windows. Since windows are seldom represented in a building's footprint, the distribution of window glass is usually the best indicator of fenestration. Unfortunately few of the windows at Pentagoet appear to have been glazed. Fragments of quarrels and associated turned lead occur in quantity behind and beside D'Aulnay's House, but are nearly absent elsewhere (Figure 4.41).[90] The quarrels are diamond-shaped, measuring approximately 9 cm in rhombus, and are extremely thin, averaging only 1.01 ± 0.29 mm (Figure 4.42). This is substantially thinner than 17th-century glass from Pemaquid, which measures 1.53 ± 0.37 mm, and 18th-century Fort Stanwix, reported as 1.59 ± 0.41 mm.[91] The thinness of Pentagoet fragments may be typical of French window glass early in the 17th century, as the 29 glass fragments reported from Ste. Croix averaged 1 mm or less in thickness.[92] At best these windows were flimsy, and probably did not stand up well to the harsh climate.

The distribution of window glass suggests strongly that D'Aulnay's House, the earliest of Pentagoet's buildings, was the only one ever to have glass windows. The remaining structures were probably fitted with oiled paper lights, as became common practice in New France for several generations to come. In fact, paper window panes apparently *replaced* glass windows in Montréal in the 18th century.[93] This supposed "devolution" was probably in both cases a practical adaptation to a harsh climate and the great vagaries of supply from sources abroad. At Pentagoet, paper panes would have permitted larger windows. This may have been an important consideration, since fenestration was limited to the courtyard side of the buildings, and building interiors must have been especially dark.

In the absence of glass remains, the locations of windows in the other structures are best indicated by hardware. As with doors, it is the hardware driven into the jambs or clinched tightly to wood frames which appears to have survived. Although small strap hinges may have been used as well, one method of hanging shutters and casement windows using side hinges is shown in Figure 4.35*e*. The only other specimen of window hardware which has been identified is a single shutter dog, Figure 4.35*f*. A cluster of small pintles occurs near the entrance of the Dwelling, and less focused groupings of window hardware occur within and around Structure 2, Figure 4.34.

Other Fittings

Interior fittings are limited to hooks which occur in a modest variety of forms. All of these were stationary hooks, either nailed, screwed, or driven into place, and were used for suspending articles, rather than as fasteners for shutters or windows. The most common are the broad, strap-like hooks shown in Figure 4.43*a–c* which may well have been gun brackets. The small screw hook, Figure 4.43*f*, which was found in the rubble of the Barracks, is very similar to a mod-

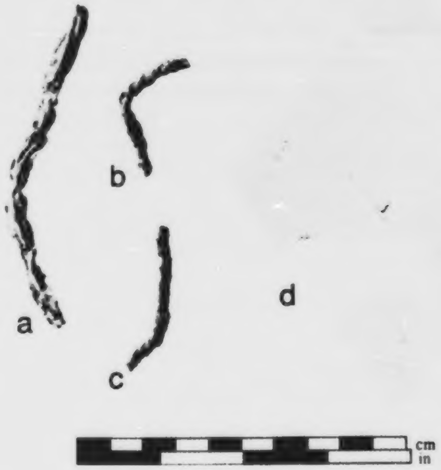


Figure 4.42 Window glazing: *a–c*, lead cames; *d*, reconstructed diamond-shaped glass quarrel. Note that cames *b* and *c* have been twisted, as if in play.

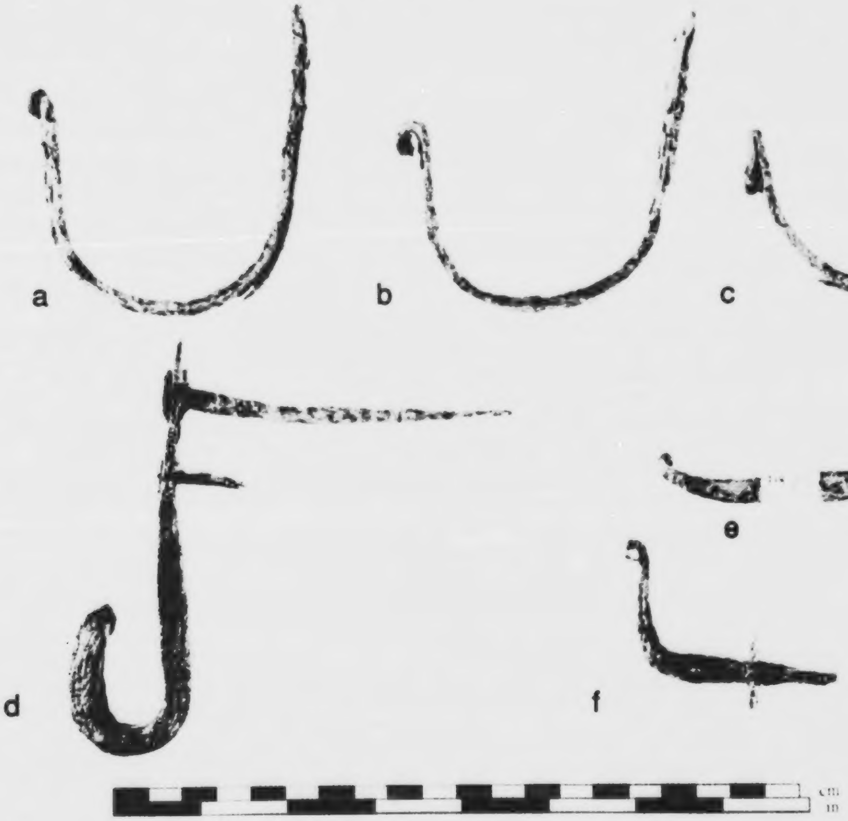


Figure 4.43 Hooks: *a-c*, probable gun racks; *d*, heavy duty hook or hinge eye with mounting nails; *e*, possible ceiling hook with curled terminal; *f*, screw-in hook with washer like back plate.

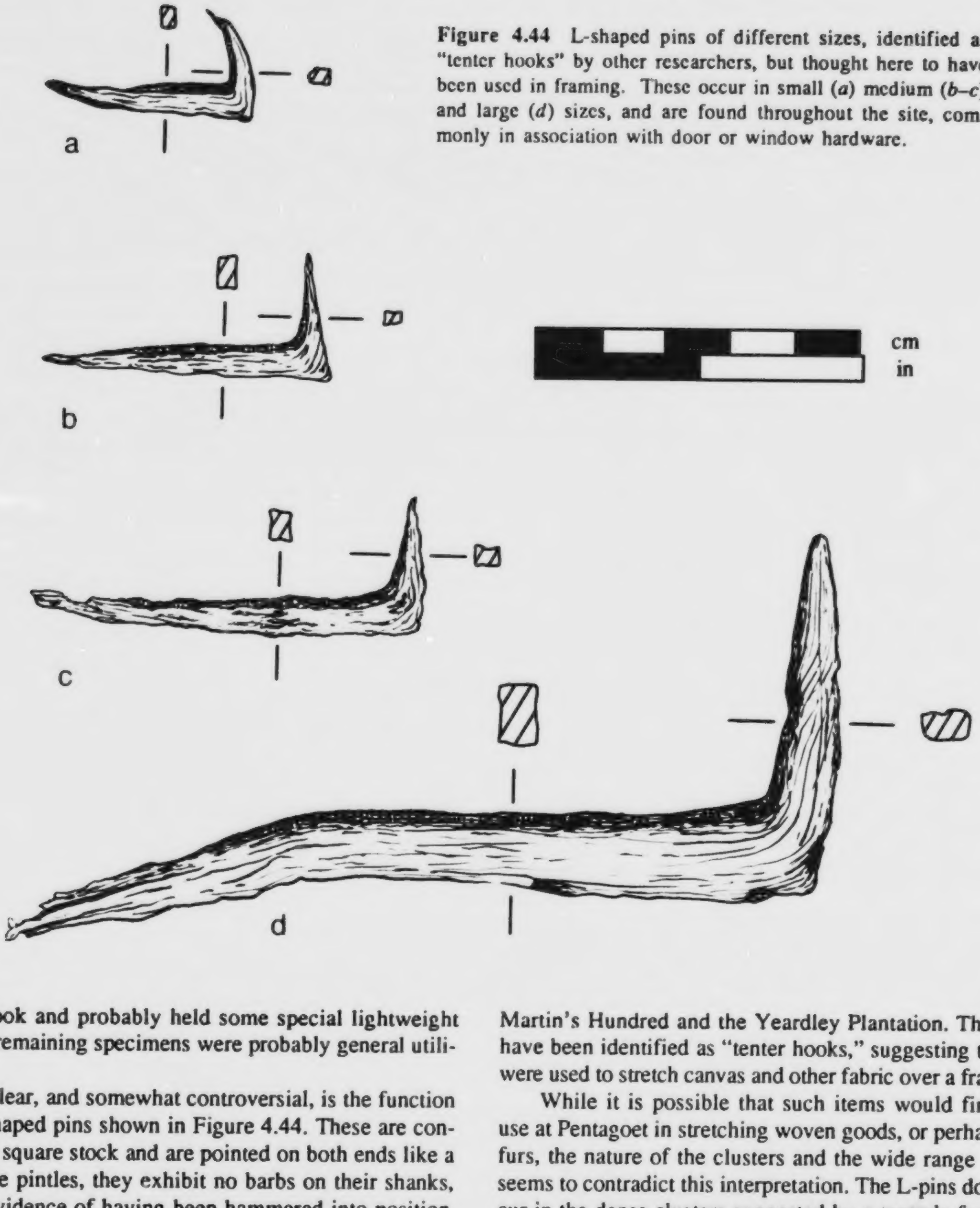


Figure 4.44 L-shaped pins of different sizes, identified as "tenter hooks" by other researchers, but thought here to have been used in framing. These occur in small (*a*) medium (*b–c*) and large (*d*) sizes, and are found throughout the site, commonly in association with door or window hardware.

ern cup hook and probably held some special lightweight item. The remaining specimens were probably general utility hooks.

Less clear, and somewhat controversial, is the function of the L-shaped pins shown in Figure 4.44. These are constructed of square stock and are pointed on both ends like a nail. Unlike pintles, they exhibit no barbs on their shanks, show no evidence of having been hammered into position, and have not been swaged to a round cross-section. Their tips are sharp and meant to impale, unlike the utility hooks described above. Similar forms, generally occurring in the small and middle sizes, have been described in Virginia at Martin's Hundred and the Yeardley Plantation. There they have been identified as "tenter hooks," suggesting that they were used to stretch canvas and other fabric over a frame.[94]

While it is possible that such items would find good use at Pentagoet in stretching woven goods, or perhaps even furs, the nature of the clusters and the wide range in sizes seems to contradict this interpretation. The L-pins do not occur in the dense clusters suggested by a tenter's frame, but appear singly or in groups of two or three throughout the site, often in association with door and window hardware. The larger specimens, moreover, seem far too large to have been used to hold fabric. Diderot illustrates these same forms

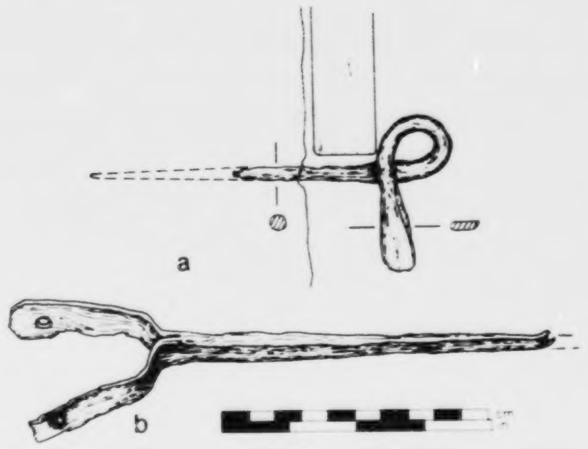


Figure 4.45 Unidentified hardware: *a*, possible shutter or catch keeper from the interior of the Barracks (2.3); *b*, possible latch part from the main room of the Dwelling (1.2).

alongside spikes, nails, staples and eyes, indicating strongly that they were some kind of fastener.[95] They may well represent some form of angle bracket used in framing or joinery, perhaps in the construction of shutters, casement windows, or cupboard doors. Whatever their use, it seems likely that wood was driven onto the spike ends, perhaps in a hidden joint. This would account both for their universally unbattered corners, and their apparent absence in 17th-century genre paintings.

Also among the structural items are specimens which could well be diagnostic, but which we have failed to identify with certainty. The loop-formed pin, in Figure 4.45*a* is illustrated as a shutter keeper, but may well have served as a hook. In any case, it was surely driven like a nail into the woodwork. The item in Figure 4.45*b* is a Y-shaped device which was apparently a moving part in some mechanism. Its yoke apparently pivoted on an axle, now missing, which passed through the open ends. While it is tempting to associate it with the hardware from the outside door of Structure 1.2 with which it was found, no door lock or latch parts of this form are known to us.

Reconstructions of the Compound

In the past, attempts to reconstruct Pentagoet on paper have relied almost exclusively on the descriptions and schematic plans of Talon and Grandfontaine.[96] But like the plans on which they are based, these interpretations are grossly distorted in size and proportion.[97] While the images are still by no means complete, there is certainly sufficient evidence of the fort's footprint and the nature of its construction to permit us to improve on these earlier renderings. The present archaeology provides accurate dimensions which help us put the descriptions of 1670 into proper perspective. It also gives a sense of texture to the construction which does not otherwise survive. But most importantly it gives us a sense of the use of space within the compound and shows how it was organized and re-organized over the course of its occupation.

The information at hand allows us to hazard two models of the fort, depicting the arrangement of the inner compound during Pentagoet I and Pentagoet III. The reconstructions shown in Figures 4.46 and 4.47 have been projected directly from the excavation plans. The footprint of the fort, redrafted from the original basemap into computer memory, was rotated to the desired orientation, and then foreshortened to provide the desired angle of view. A wire diagram of the superstructure was then carefully drawn to scale on the computer, using several known examples of French military and rural architecture as guides for building proportions.[98] Using the resulting computer printout as a mockup, an artist then fleshed out this architectural skeleton.[99]

Features which have been fully excavated are shown in detail; those which were merely tested are represented in outline and appear transparent in areas where they would obscure important information. No attempt has been made to represent refuse and clutter within the compound, nor have the surrounding defenses been indicated; the curtain exteriors have been left exposed to give a sense of relief, although they actually would have been covered by the surrounding earthworks. Yet, imperfect and incomplete though these ren-

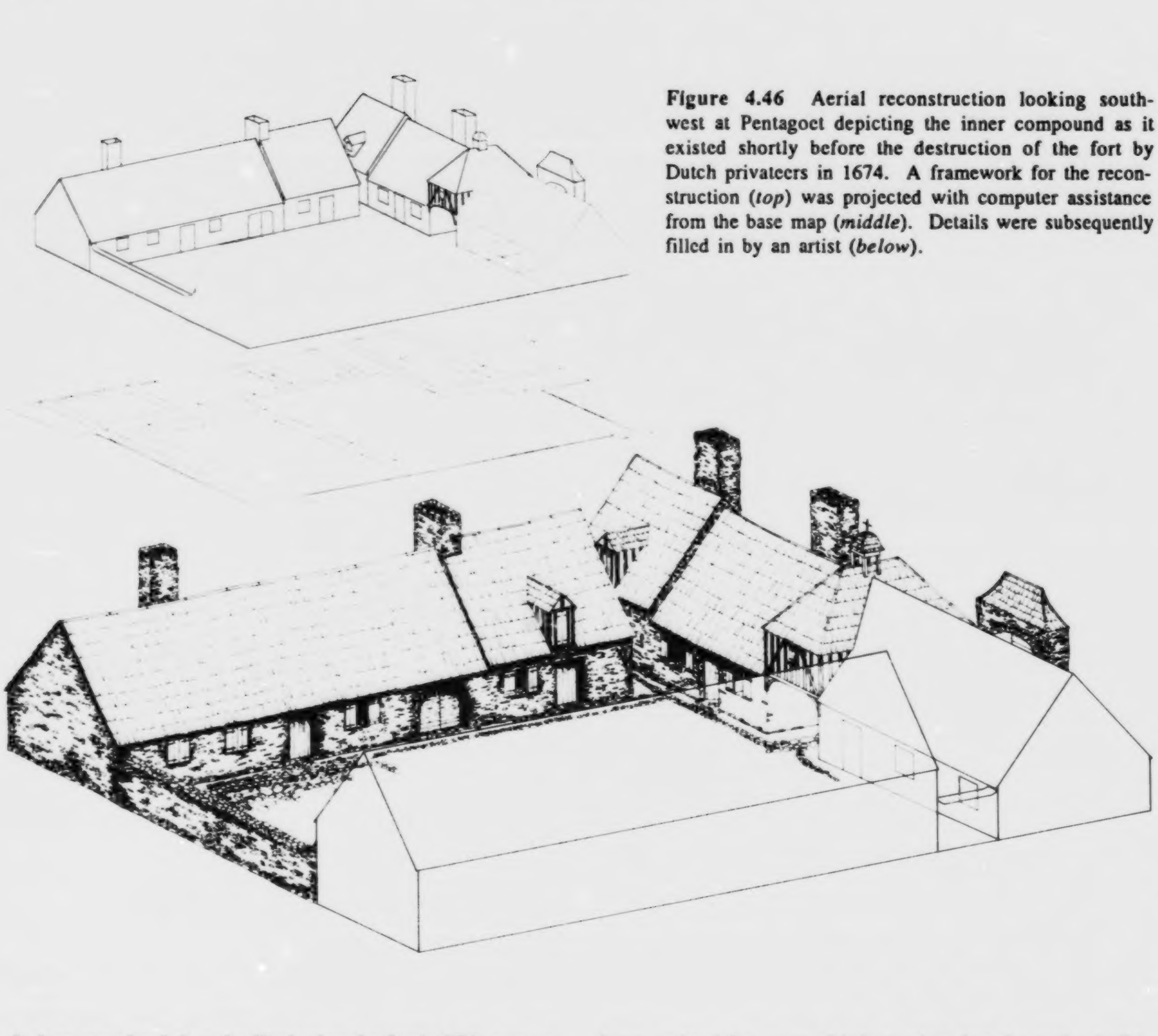


Figure 4.46 Aerial reconstruction looking southwest at Pentagoet depicting the inner compound as it existed shortly before the destruction of the fort by Dutch privateers in 1674. A framework for the reconstruction (*top*) was projected with computer assistance from the base map (*middle*). Details were subsequently filled in by an artist (*below*).

derings may be, it is quite likely that the fort's 17th-century occupants would have been able to recognize them.

The Compound in 1674

Figure 4.46 shows the reconstruction of Pentagoet's compound looking southwest in the direction of Penobscot Bay, as it might have appeared just before the fort's destruction in 1674. The drawing shows the archaeological features of the compound as they were found sealed immediately below the rubble, and incorporates modifications made since the return of the fort to the French in 1670. Construction such as Wall N, which was apparently under way in the vicinity of the east curtain at the time of the fort's demise, has been omitted for want of information, but the major buildings have been faithfully represented.

Structure 2 appears as a long Barracks adjoining a smaller Officers' Quarters. A dormer, which has been added to the Officers' Quarters, indicates the likely use of the garret space above the complex as sleeping chambers. The Dwelling appears as a three-room, split-level house, while the timber-framed chapel, complete with a small bell tower, spans the entranceway between the Dwelling and the Guard House. A roofed arch, reconstructed in the fashion of simple rural gateways of the period, forms the outer gate beyond the "small redoubt" and corresponds generally to a similar feature indicated on Talon's plan.

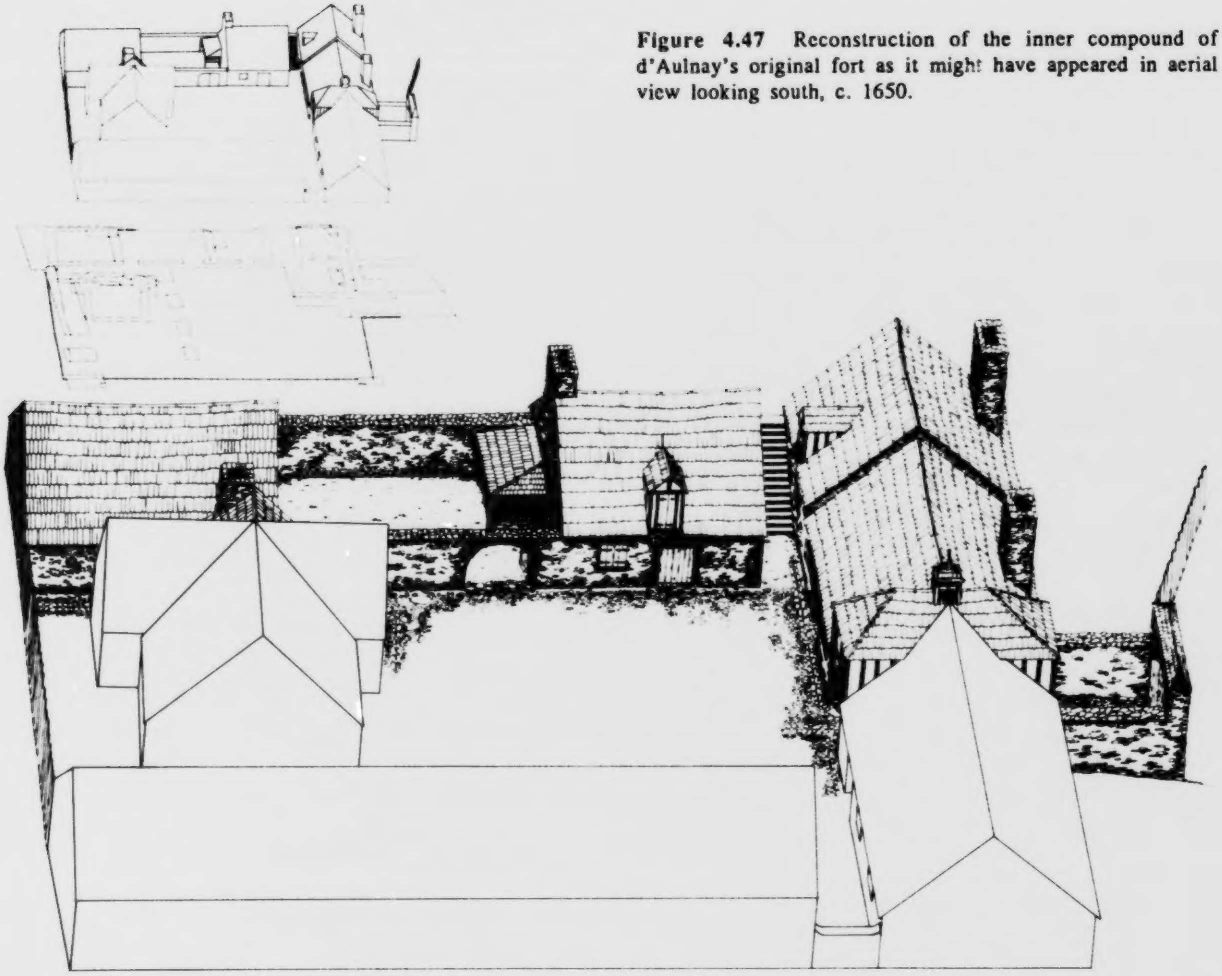


Figure 4.47 Reconstruction of the inner compound of d'Aulnay's original fort as it might have appeared in aerial view looking south, c. 1650.

The Compound of D'Aulnay's Fort, c. 1650

The original fort, built and developed under d'Aulnay's direction in Pentagoet I, probably changed little in plan right up to the beginning of Pentagoet III. There are no indications that the English made any substantial modifications to its physical plant during Pentagoet II other than to augment its armament. Indeed, the records of the subsequent return of the fort in 1670, emphasize its neglect rather than its improvement. What is missing in this later documentation is supplied, in part, by the archaeological record. The excavations allow us to identify the Smithy and workshop, which apparently were no longer actively used at the turnover of the fort, and D'Aulnay's House, which had long since been destroyed.

Figure 4.47 shows the earlier compound, and is reconstructed from a slightly different angle, looking almost due south, to reveal the major differences between d'Aulnay's fort and that of Grandfontaine and Chambly. This permits a view of the original three-bay layout of Structure 2: the unheated Workshop and connecting Smithy, and the abutting house. Within the open Smithy is the forge, which shares a common chimney with the house, and is reconstructed here with a small, shed roof. Facing Structure 2 is D'Aulnay's House, of which only the southern end is known in detail.

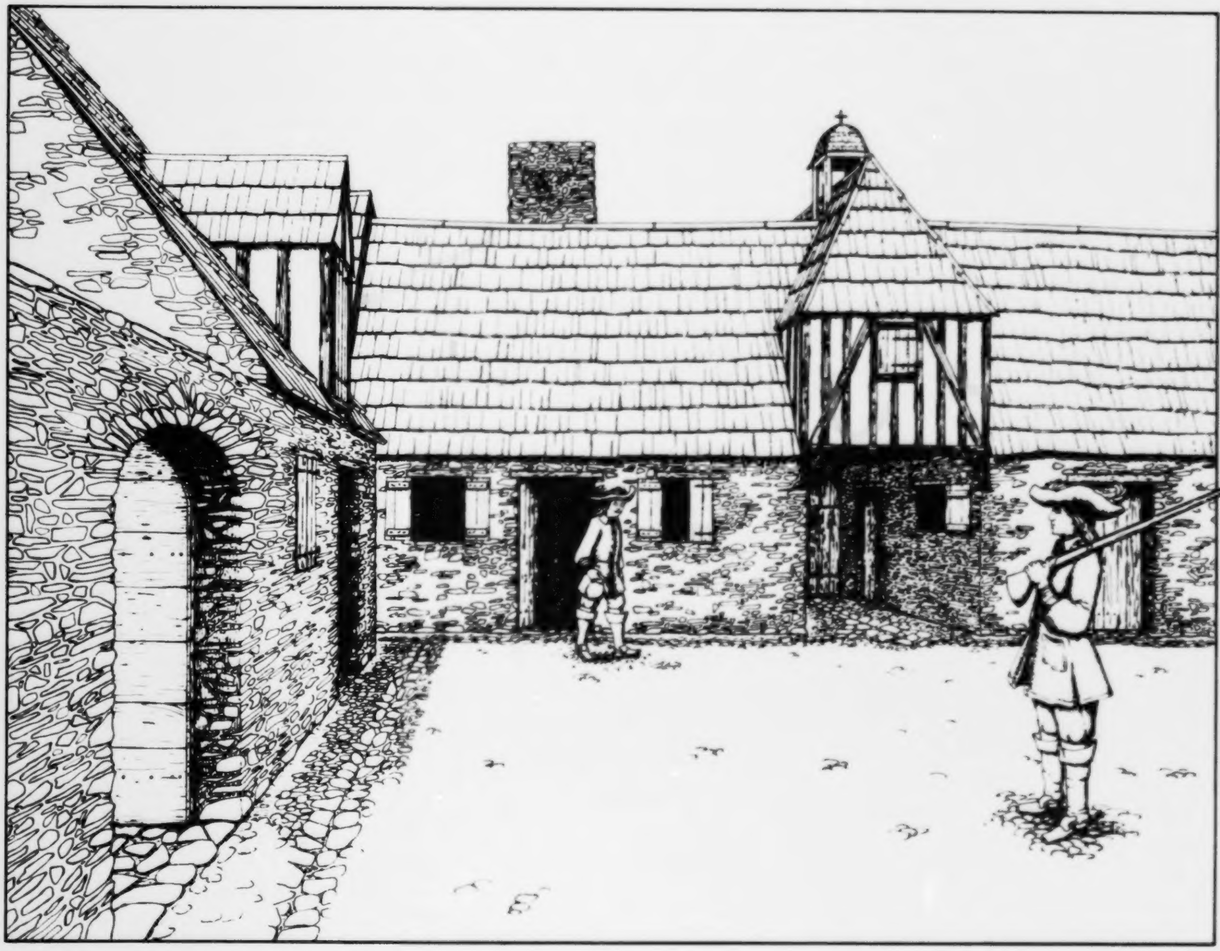


Figure 4.48 Perspective drawing of the fort's interior during Pentagoet I. The viewer stands at the southwest corner of D'Aulnay's House and looks west towards the entrance to the fort which is covered by the wattle and daub Chapel. To the left a large arched doorway enters into the Smithy. A servant carrying an earthenware pot emerges from the Dwelling across the courtyard, while a soldier, wearing spurs as a mark of rank, surveys the scene.

On the east end is a palisade, thought to have existed here prior the completion of the eastern curtain in stone. A second view of the fort during this period, Figure 4.48, shows the fort in perspective as it might have have appeared to one of its occupants.[100]

Defenses

While it is possible to reproduce a reliable image of the inner compound, the fort's defensive works are not so easily reconstructed. Unlike the fort's interior, where foundations were protected beneath the rubble of their superstructure, the plan of the earthen defenses has been nearly obliterated in the process of leveling. Although further excavation would help clarify the nature of the outworks, we must interpret the defenses largely through historical records and existing stratigraphic sections.

Earthworks

As we have noted in discussing stratigraphy, the first stage of construction at Pentagoet involved regrading the area of the compound and building earthworks. These were the defenses encountered by the Plymouth colonists when they attempted to recapture the site shortly after the French takeover in 1635, and found that the French were already well entrenched.[101] The full development of the defenses, however, was a gradual process. The compound of Pentagoet I was surrounded on two or three sides by a stone curtain, and on the east, behind D'Aulnay's House, by an earthworks or a palisade. Sometime before Pentagoet III, D'Aulnay's House was demolished and the perimeter was completed in

TABLE 4.2
Accounts of Ordnance Itemized by Weight

Description*/ Ball Capacity	"Act of Surr." Aug. 5, 1670	"State of Fort" Aug. 6, 1670
Cannon, 8 pound		
	3200	3200
	3100	3100
Cannon, 6 pound	1850	1800
	1850	1230
	1500	1500
	1500	1500
	1500	1500
	2230	1350
Cannon, 4 pound	1310	1310
	1232	1232
Culverines, 3 pound	925	925
	925	925
Wt. of mounted guns	21122	19572
Murderers, dismounted	1200	1200
	1200	1200
	1200	1200
	1200	1200
	1200	1200
	1200	1200
Total guns in place	12	12
Total guns dismounted	6	6

*All artillery of iron

TABLE 4.3
Pentagoet Cast Iron Shot

Shot type	Artifact number	Diam. mm	Weight grams	Diam. inches	Weight pounds	Prob. Bore pounds
Cannonball						
complete	5977	140	10465	5.52	23.07	24
complete	850	105	4025	4.14	8.87	9
complete	883	96	3170	3.78	6.99	8
complete	1564	96	3205	3.78	7.07	8
complete	1334	96	3415	3.78	7.53	8
complete	2700	90	2610	3.55	5.75	6
complete	11781	77	1650	3.03	3.64	4
complete	3722	76	1575	2.99	3.47	4
complete	6852	72	1315	2.84	2.90	3
complete	6308	68	1185	2.68	2.61	3
complete	6475	68	1185	2.68	2.61	3
complete	10827	65	1055	2.56	2.33	3
complete	11780	60	805	2.36	1.77	2
complete	4933	58	690	2.29	1.52	2
Spike shot						
complete	7772	74	1750	2.92	3.86	4
complete	1667	74	1820	2.92	4.01	4
Crossbar shot						
complete	137	97	7770	3.82	17.13	8
Chain shot						
half	882	69	1095	2.72	2.41	3
Grapeshot	2725	28		1.10		
Grenade						
half	4102	84		3.31		6
half	11352	84		3.31		6
fragment	5130					

stone, an evolutionary sequence which occurred at many comparable frontier fortifications including Fort Frontenac in Kingston, Ontario and Fort La Tour.[102]

The final earthen ramparts were built up against the stone curtain, perhaps to the height of the buildings. These earthworks were protected by a surrounding envelope or palisade, now long vanished, having been systematically dismantled by souvenir hunters in the 1880s. Casemates, discovered in excavation, were located in the northeast and northwest corners of the fort, and, according to the two 17th-century plans, were contained within up-to-date, arrowhead-shaped bastions. As is well illustrated in Grandfontaine's plan, however, the principal defenses of the fort were located on the seaward side, and were retained by a wooden cribwork. These included three rounded or semi-circular gun platforms which contained the fort's heaviest artillery. To reduce injury to the gunners from flying debris, the central platform was protected with sod fraises and embrasures through which the cannons were fired. Sod was probably used elsewhere in the construction of the defensive works as well, accounting for their impermanence in the archaeological record.

Ordnance and Shot

While the English may not have altered the fort appreciably during Pentagoet II, William Crowne did replace the original 8 cannons and 3 mortars with 12 cannon and 6 mortars.[103] This armament was fully accounted for at the turnover of the fort in 1670, and the essentials of the two surviving descriptions are compared in Table 4.2. Although exhibiting minor discrepancies in cannon weight, both accounts list 12 cannon of 3, 4, 6 and 8 pound ball capacity and six murderers or mortars of undetermined size. This ordnance was mentioned again by Grandfontaine in 1671, and was presumably the artillery used to defend the fort at its destruction three years later.

No remains of the cannon themselves have been found, with the possible exception of a ring which may have reinforced a small cannon barrel. Nevertheless the site has produced several specimens of cast iron shot and related projectiles, (Table 4.3 and Figure 4.49). Besides cannon balls,

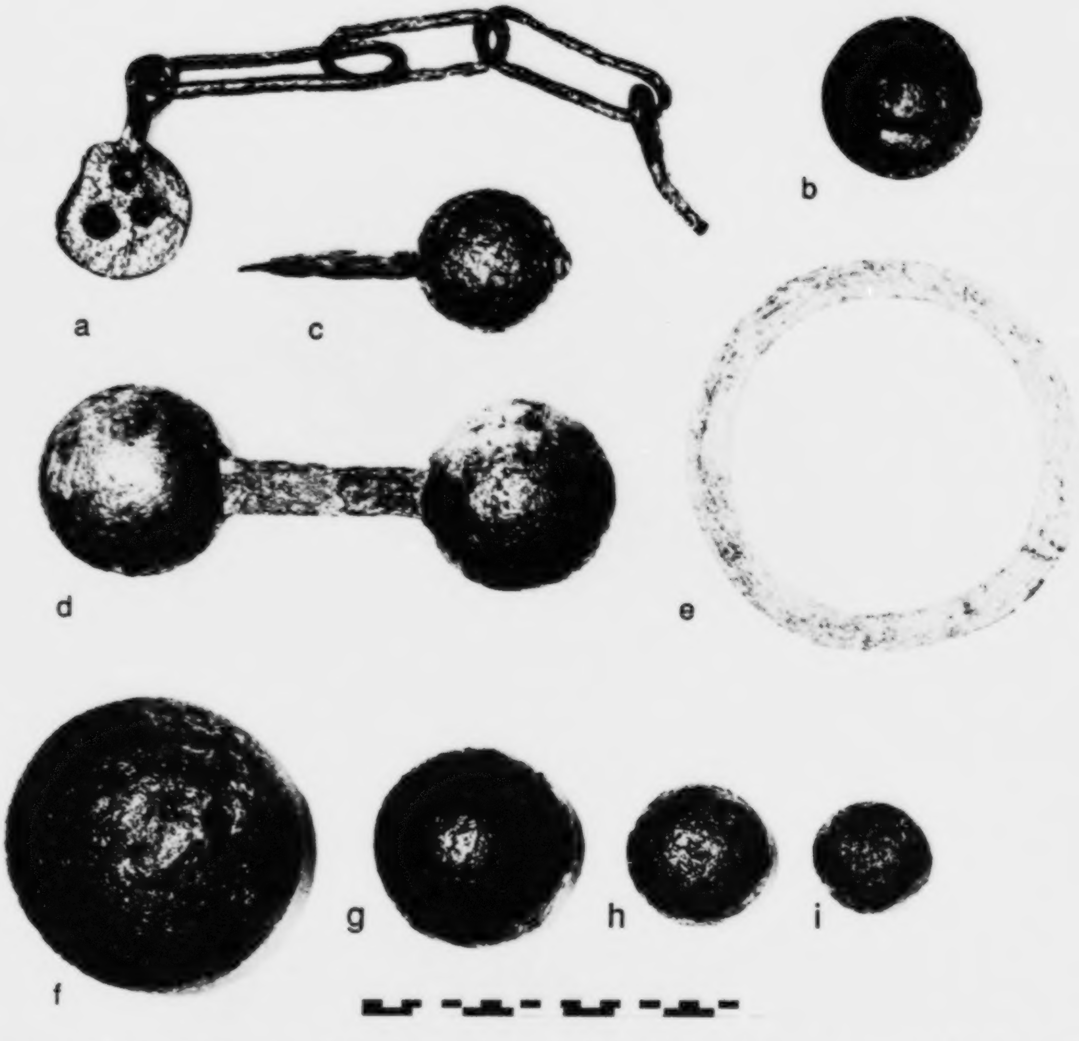
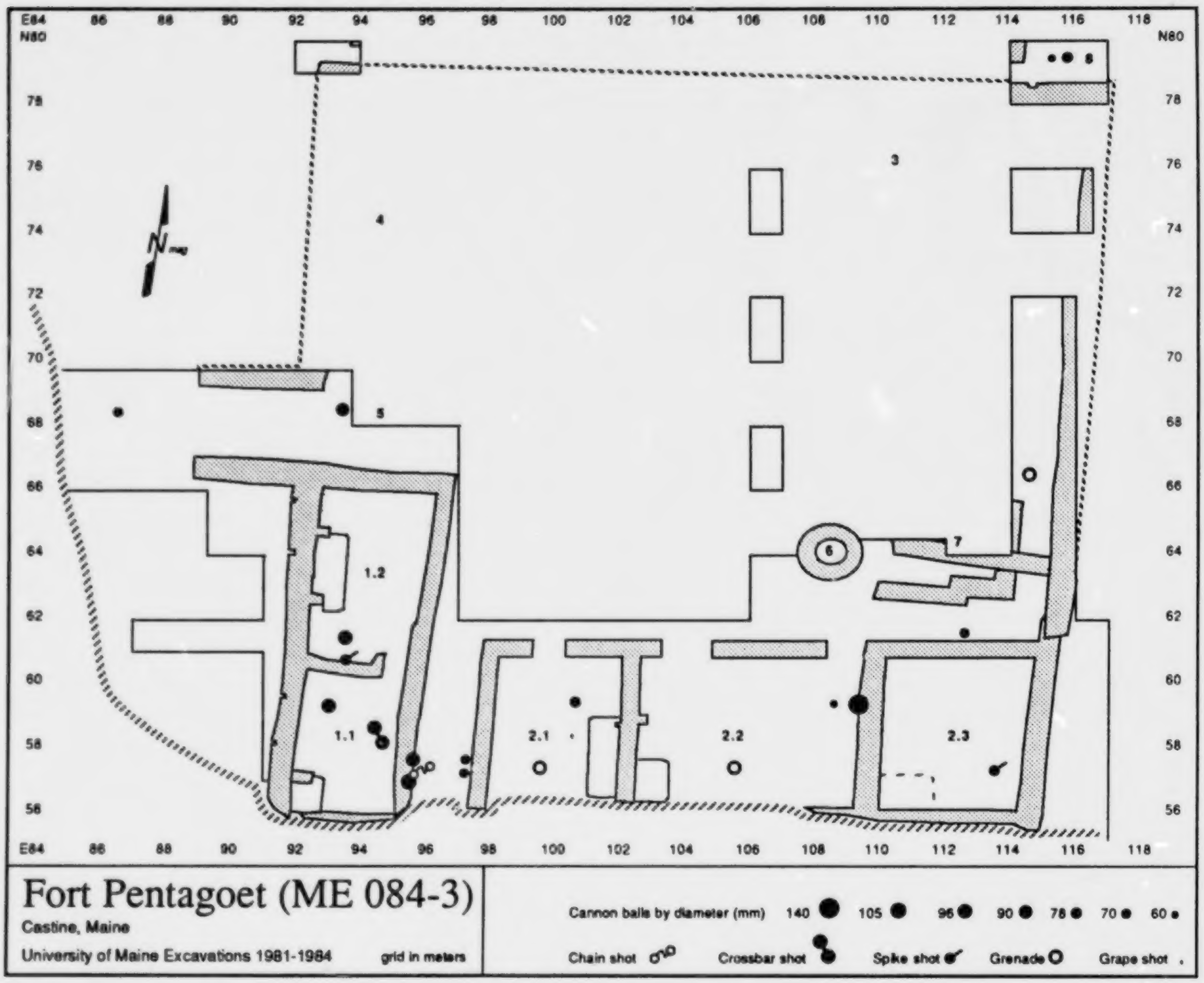


Figure 4.49 Cannon ammunition of various types found within the rubble of Pentagoet: *a*, chain shot designed for use against a ship's rigging; *b*, hollow grenade or mortar half; *c*, spike shot originally wrapped in cloth and used as an incendiary device; *d*, crossbar shot designed for use against a ship's rigging; *e*, possible cannon barrel reinforcing ring found within the cellar kitchen of the Dwelling; *f–i*, sample of round shot representing the range of cannonball sizes.

these include spike shot, which was used as an incendiary device, antipersonnel missiles, including exploding shells and grape shot, and crossbar and chain shot, designed to take down a ship's rigging.[104] All of these specimens, some whole and some fragmentary, were found scattered throughout Pentagoet's slate rubble, and, therefore represent the bombardment of the fort rather than ammunition storage.[105]

Taken together with the inventory of Pentagoet's ordnance, the assemblage of shot recovered in excavation gives some insight into the nature of the fort's demise. It is likely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Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
Cannon balls by diameter (mm) 140 ● 105 ● 96 ● 90 ● 78 ● 70 ● 60 ●
Chain shot
Crossbar shot
Spike shot
Grenade ○
Grape shot .

Figure 4.50 Distribution of cannon shot within the fort. Note the unusual cluster of shot in the site of the ramparts stairway between Structures 1 and 2.

that the Flemish captors of Pentagoet were responsible for grenades and incendiary spike shot, as they intended to disable the garrison and set the fort ablaze. However, the type and placement of projectiles within the fort suggests that some of the missles were fired from Pentagoet's own ordnance. As is shown in Figure 4.50, four cannon balls and a specimen of chain shot were found near the inside of the southern curtain at the site of the ramparts stairway between the Dwelling and the Officers' Quarters. A crossbar shot was located nearby in the kitchen cellar of the Dwelling. It is all but impossible for these projectiles to have cleared the ramparts from the seaward side and still have come to rest so close to the southern curtain. This suggests that once the garrison had surrendered, the Dutch leveled the masonry at close range from within the parade, using the fort's own guns and whatever ammunition was available. Thereafter they took the ordnance off to Boston to be sold.[106]

If Pentagoet was destroyed principally by its own armament, the cannon balls in question must have been compatible with its documented artillery. However, this

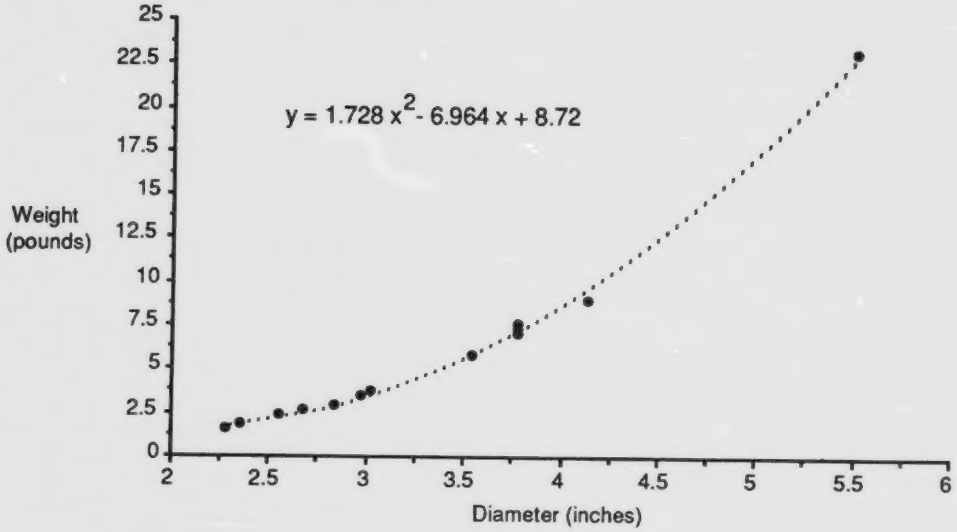


Figure 4.51 Relationship between diameter and weight of shot found at Fort Pentagoet. Note that the shot fails to cluster in discrete groupings by weight or diameter, and that the weight of the cannon balls varies as the square of the diameter of the shot rather than as the cube, as would be expected of spheres of uniform density.

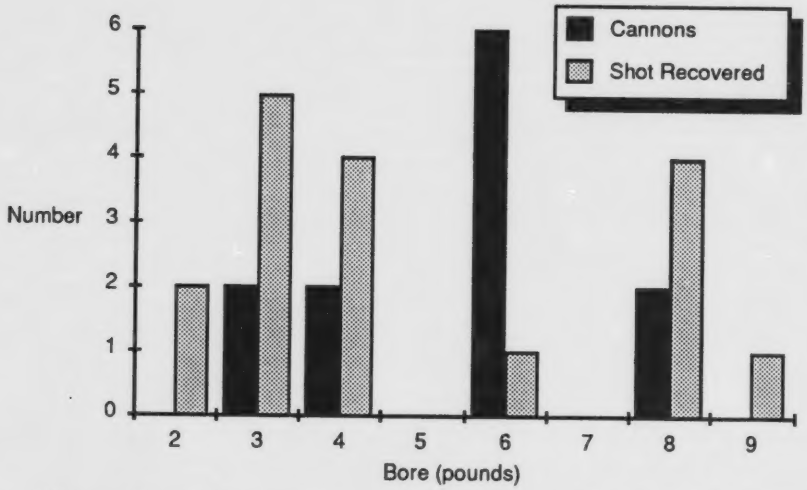


Figure 4.52 Comparison of sizes of documented ordnance and excavated cannon balls. A 24 pound ball, obviously too large for Pentagoet's recorded armament, is not included in the chart.

correspondence is more difficult to demonstrate than one might expect, as is apparent from the scatter diagram in Figure 4.51. First, there are no consistent clusters of cannon balls either by weight, or, more importantly, by diameter. The problem does not appear to be related to preservation, as most of these cast-iron projectiles have been rather well preserved; their mold seams and sprue marks are clearly visible and their surfaces are hard and dense. Furthermore, the mass of each Pentagoet cannon ball is not proportional to its volume, as one would predict, but rather to its surface area.[107] In other words the densities of the cannon balls behave as if the shot were almost hollow, and indeed the exterior surface appears to have been far denser than the interior. Quality control in shot production seems to have been casual, resulting in considerable variation in size and density.

Bearing in mind these irregularities, we have classified these cannon balls according to their raw weight in one pound increments, and have tentatively assigned each specimen of shot to the largest weight category which it does not exceed. The results of this analysis are shown in Figure 4.52. One specimen, a 24 pounder, was far too large for Pentagoet's recorded ordnance and therefore must have been fired by the Dutch. The remaining projectiles, including the chain shot and crossbar shot, could indeed have been fired from Pentagoet's guns.[108] Surprisingly, however, there is only one ball appropriate for the fort's most common cannon, the 6-pounder. Perhaps the ammunition for these cannon had been exhausted; alternatively, the Dutch may have chosen the lighter, more portable, ordnance for the task of leveling the fort.

Some Other Fortifications

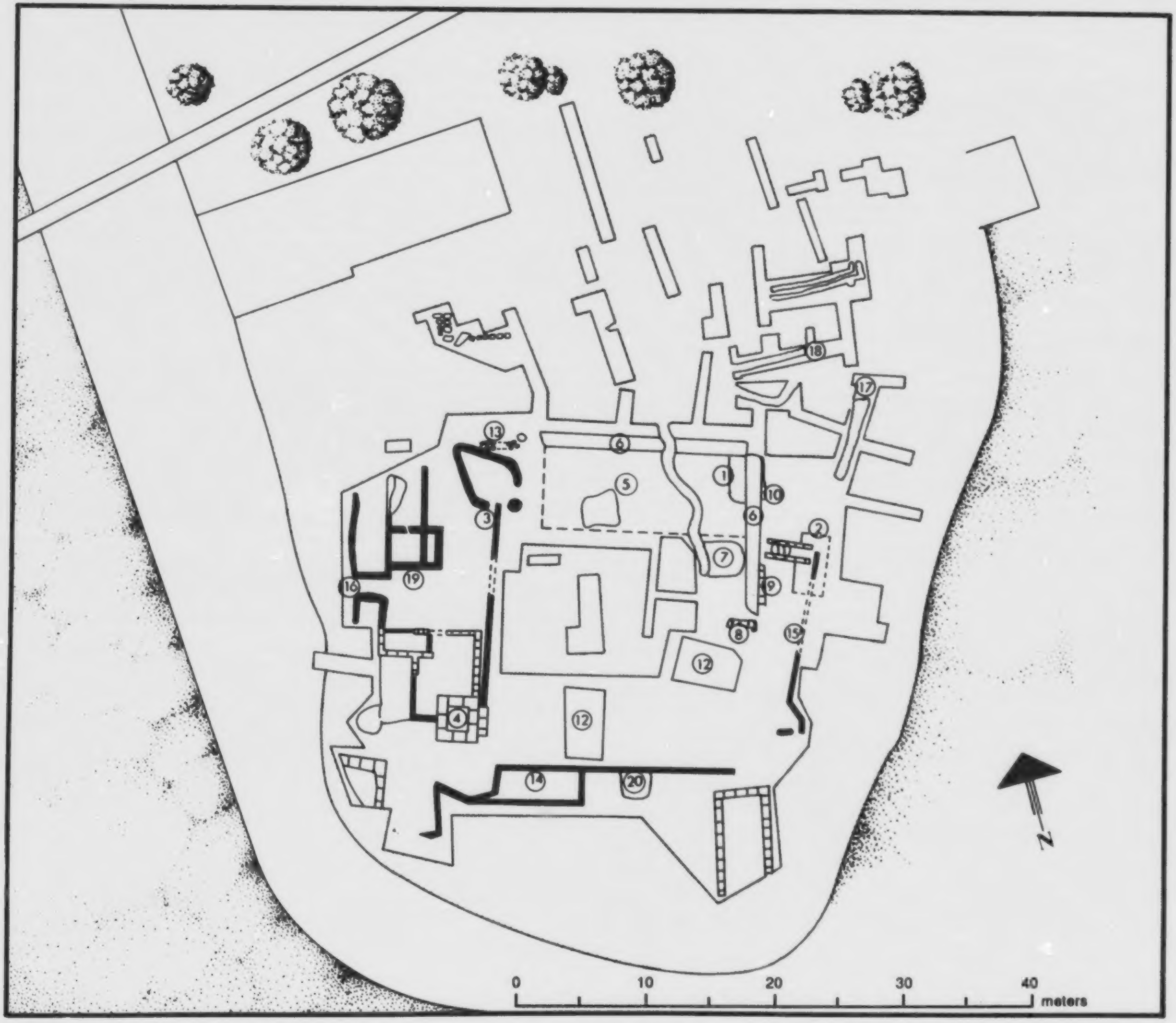
The scale of Pentagoet, and its significance both as a private enterprise and as a military outpost can only be appreciated when viewed in relation to other 17th-century fortifications in the northeast. The size of the outpost can best be measured against other sites on the basis of the defended area within the curtain. Pentagoet's compound is nearly square and measures 23.50 m by 24.25 m or approximately 570 m^2. A small fortification which may never have garrisoned more than 25 employees and soldiers, it was, nevertheless, as large or larger than most of its contemporaries.

Champlain's Second Habitation, 1624–1632

Champlain's Second Habitation in Québec was built in 1624, at least 11 years before Pentagoet, and was similarly situated, lying near the water's edge in an area commanded by higher ground. It too was built of tabular stone, although in this case it was apparently laid up in lime mortar. Yet the construction was on an entirely different plan. The fortified habitation itself was a U-shaped affair looking somewhat like a medieval castle with twin towers on the landward side. The contiguous building complex was comprised of just three elements: a barracks, a magazine, and a secondary lodging. The complement of men actually garrisoned here is not clear, but has been estimated at between 16 and 40 people, the same order of magnitude as at Pentagoet. It should be noted, however, that the Habitation was but the nucleus of a larger settlement—about 72 in the winter of 1627-1628—which rapidly grew up around the establishment and eventually absorbed it. By 1640, Québec was defended by the Fort and Chateau of Saint-Louis on the Citadel west of and far above the Habitation.[109]

Because of the Habitation's open design on the seaward side, it is difficult to delineate an area of defended living space comparable to Pentagoet's compound. According to its excavators, the entire site, within the perimeter of its moat, covered an area of about 1000 m^2, but this apparently includes a considerable area of defensive works themselves.[110] It seems reasonable, however, to consider the compound to be the building complex itself together with the court enclosed by its two wings—an area which was apparently enclosed by an earlier wooden habitation which it replaced. Although the buildings occupied only about 344 m^2, they enclosed an area of approximately 210 m^2, for a total living area of 554 m^2, just slightly smaller than Pentagoet.[111]

Small though it may appear to have been, Pentagoet was built at a scale comparable to the second generation of settlement at Québec. Its structures were more clearly differentiated, however, and its plan, showing well-developed bastions suited for defense against firearms, was more in keeping with modern warfare.



Fort La Tour 1
1. Structure 1
2. Structure 2
3. Bastion and Palisade

Fort La Tour 2
4. Bastion
5. North Compound
6. Cobblestone Drains
7. Structure 4
8–10. Walls 1–3
11. Corridor
12. Cellars
13. Paved Stones
14–18. Palisade or Ditches
19. West Compound
20. Bastion

Figure 4.53 Plan of excavations at Portland Point, Saint John, New Brunswick, site of Fort Sainte-Marie, popularly known as "Fort La Tour." Features on the periphery which lack numbers date after Fort La Tour. (after Barka, 1965, Plan 1, courtesy of the New Brunswick Museum)

Fort La Tour, 1631–1645

The features of Charles de La Tour's establishment in Saint John, New Brunswick are known only from archaeological sources. Parts of several structures have been identified within the original compound, although their functions are not clear, and the organization of the plan seems quite muddled (Figure 4.53). This is due, in part, to repeated episodes of rebuilding over its history as a 17th-century fort and as an 18th-century trading post. The original palisade lines of Fort La Tour 1 (1631–c. 1640) indicate that the compound was approximately 21.3 m by 24.9 m or 530 m^2. Initially, then, Pentagoet and Fort La Tour were similar in size and shape.[112] The latter, however, appears to have been greatly expanded in Fort La Tour 2 (c. 1640–1645), perhaps to half again its original size.[113]

Although certain aspects of architectural detail are quite similar, the resemblance between Charles d'Aulnay's fort and that of his principal competitor, is less striking than one might expect. Hearths, chimneys, cobble paved drains, and isolated passageways were built of stone, and resemble the ruins at Pentagoet. But the construction of most of the buildings and defenses appears to have been of wood. The buildings were timber-framed and set on wooden sills placed directly on the ground, while the palisade was built of posts set in trenches rather than driven into the ground.

Sainte-Marie Among the Hurons, 1639–1649

Sainte-Marie I was a contemporary Jesuit stronghold located near the modern town of Midland, Ontario. By contrast, this outpost was rectangular in plan, measuring approximately 43.3 m by 16.2 m, for an area of 701 m^2. The defended compound, therefore, was 23% larger than Pentagoet. Here the curtain and bastions were largely of coursed masonry, although all buildings were of wood. The compound enclosed only three buildings crowded along the long western side: a residence, a "chapel," and a workshop or forge. Much of the remaining open space was interrupted by a ditch which ran lengthwise through the center of the outpost. While Sainte-Marie among the Hurons may have been the larger complex, Pentagoet enclosed as much if not more usable space, and exhibited a higher degree of structural differentiation.[114]

Fort William Henry, 1692–1696

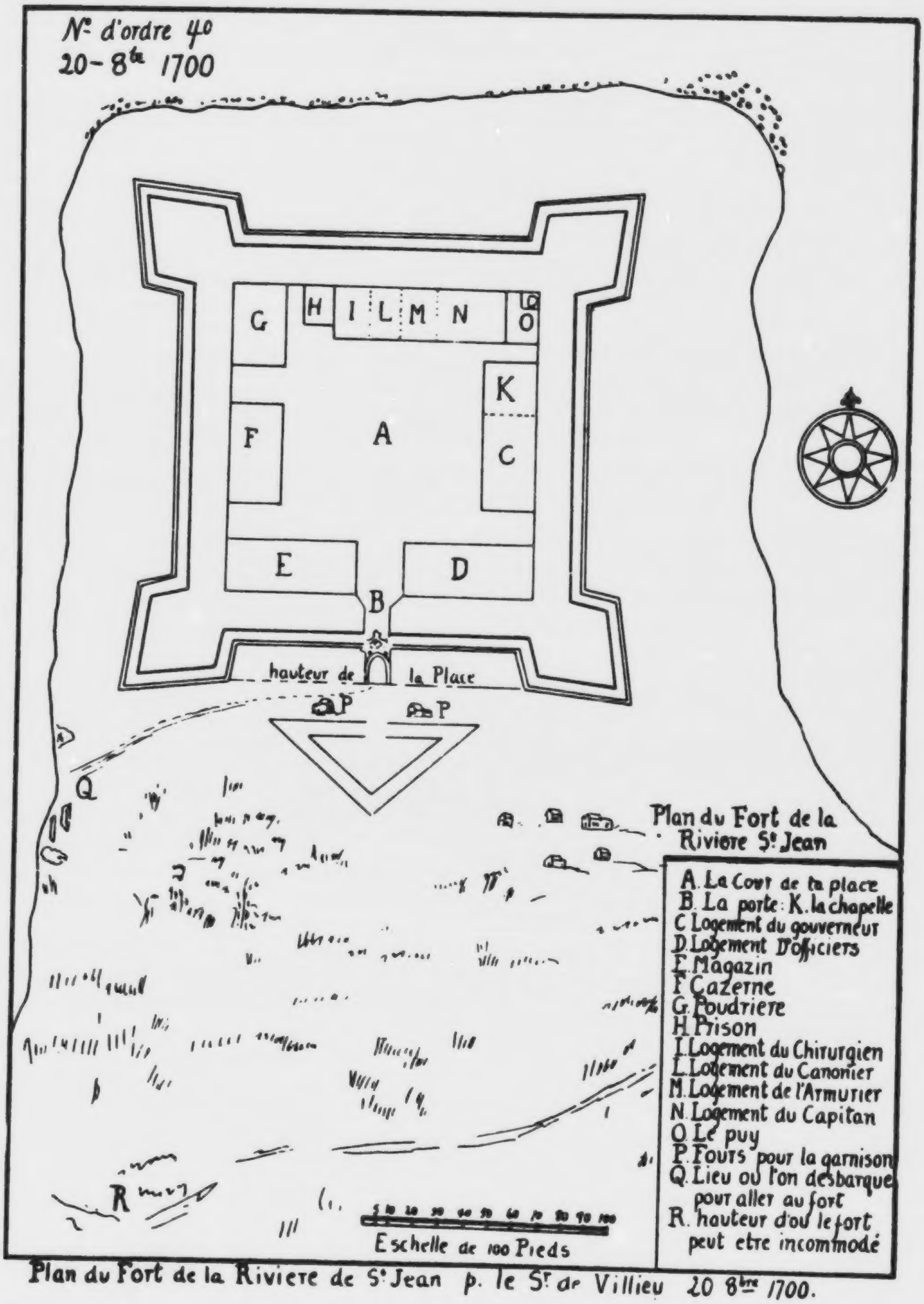
The only comparable English fort which has been excavated in Maine is Fort William Henry at Pemaquid, built to defend the northeast bounds of English settlement. This was a much later fortification constructed in 1692 some 18 years after Pentagoet had been destroyed, and represents the first attempt in New England to build a major fortification of stone. Built of rounded fieldstones laid in random coursed walls nearly a meter and a half thick, and having round corner towers rather than angular bastions, the military architecture appears to be a throwback to medieval warfare. The area covered within the rhomboidal curtains was approximately 1980 m^2—nearly three and a half times the size of Fort Pentagoet. Among its many other failings, it was probably too large for the garrison of men trained to defend it. This immense, poorly designed and poorly constructed fortification stood just four years, and was taken by a small party of Indians and French in 1696.[115]

Fort Saint-Jean, c. 1696

The advanced design of Fort Pentagoet, on the other hand, is best seen by comparing it to a later French outpost, Fort Saint-Jean, built c. 1696 by Villebon near the site of La Tour's earlier establishment in Saint John Harbor. Known principally from a plan drawn in 1700, this fort is very similar in situation and function to Pentagoet (Figure 4.54). Unlike the drawings of the earlier forts, this is a measured plan, and should provide a reliable estimate of the size of the installation and of building proportions. Figuring the pied at 32.5 cm, the area within the curtains was approximately 1632 m^2 or nearly 2.9 times that of Pentagoet.[116] Six major buildings are identified in the compound, two of which are subdivided into smaller units. But while there are many more rooms at Fort Saint-Jean, the increased differentiation seems to be related to rank, reflecting the larger size and more complex hierarchy of the garrison. Otherwise, the fort shows little more functional variety than does Fort Pentagoet. The two layouts seem very similar, although at quite different scales. In each case, the plan of the fort is square with four well-flanked, arrowhead-shaped bastions. Buildings all share at least one wall with the curtain, and the entrance, surmounted by a belfry, is centrally located on one side. Thus Pentagoet seems to have had all the basic ingredients of a major fortification, albeit in miniature.

The resemblance of Fort Pentagoet to Fort Saint-Jean may, in fact, reflect a common origin. Villebon's fort was the third to be built on the site, the first of which was constructed by d'Aulnay after he destroyed La Tour's outpost on the opposite side of the bay in 1645. In 1672, the Sieur de Martignon repaired d'Aulnay's fort, and named it for himself. When Fort Saint-Jean was built, two generations of construction later, it was noted that "...the old fort of four bastions so far remained that it could be restored; the ditches needed to be deepened, the parapets raised, and a new palisade constructed."[117]

Fort Saint-Jean was apparently designed for a garrison of 200.[118] On the basis of total compound space allocated per man, this would indicate that Pentagoet could have garrisoned as many as 70 men. The actual capacity of the Pentagoet was far smaller, however, because of the minimum size requirements for each building. Proportionally, far more space was taken up by certain essential facilities not directly related to sustaining the common soldier: the Dwelling or Governor's House, the Guard House, the Chapel and the Workshop.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Plan du Fort de la Riviere St Jean
A. La Cour de la place
B. La porte: K. la chapelle
C Logement du gouverneur
D. Logement D'officiers
E. Magazin
F Cazerne
G. Poudriere
H. Prison
I. Logement du Chirurgien
L. Logement du Canonier
M. Logement de l'Armurier
N. Logement du Capitan
O. Le puy
P. Fours pour la garnison
Q. Lieu ou l'on desbarque pour aller au fort
R. hauteur d'ou le fort peut etre incommodé
5 10 20 30 40 50 60 70 80 90 100
Eschelle de 100 Pieds
Plan du Fort de la Riviere de St Jean p. le Sr de Villieu 20 8bre 1700.

Figure 4.54 Fort Saint-Jean, Saint John, New Brunswick, in 1700. (after Clarence W. Webster)

Pentagoet's actual garrison is recorded in accounts of engagements and in census data. In 1635 and 1654, the limits of Pentagoet I, 18 men defended the fort. Later, in Pentagoet III, the figure increased slightly: 25 soldiers and one family in 1671, and finally 23 men when the fort was destroyed in 1674.[119] Even at 25, this was a minimal crew size for managing the 12 cannons and 6 mortars in place in the fort's defenses. Still, given the small, single barracks, it is difficult to imagine a larger, permanent garrison within the compound. The fort, therefore, was at a critical size: it was able to sustain a garrison which was barely adequate, or perhaps inadequate, to man its own defenses.

Interpretation

The latest perspective on Pentagoet indicates this it was not a hodge-podge cluster of structures about which earthworks and palisades were placed in a haphazard attempt to defend it. Nor was it the commodious plan illustrated by Talon, its spacious inner compound occupied by individual free standing buildings, or the intricate, sprawling defensive work laid out like a defended European town as suggested by the Grandfontaine plan. It was, instead, a simple, compact and efficient frontier outpost, well differentiated internally, with separate facilities designed for specialized purposes. While the fort was surely the product of vernacular military architecture, its components were all assembled according to a well laid plan, apparently based on an established prototype. The defended perimeter was delimited first, and the buildings within conformed to the compound thus defined. Except for the initial dwelling, Structure 7, each building was constructed up against the inner curtain wall to conserve space and masonry. The simple defenses were drawn in as close as possible to the fort, so as to be defended by a garrison of minimum size. Yet it was the equal of any of its contemporaries, an outpost acknowledged by the English enemy to be "... a very strong fort, the great strength against which is not able to take it except it be by strategem or storming."[120]

◆

Notes to Chapter 4: Anatomy of the Fort

1 Anonymous, "Castine, its History and its Relics: Field Day of the Maine Historical Society," clipping from an unidentified Portland, Maine newspaper, c. September 25, 1880, (on file, Castine Scientific Society, Wilson Museum, Castine, Maine).

2 It is, in fact, a 19th-century English transcription of a 1750 copy of the original translation of Grandfontaine's 1670 account!

3 "Plan de la situation du fort de Richelieu," Archives Nationales, Paris, Section Outre-Mer, Dépot des fortifications des colonies, Amérique septentrionale, 492c. Although labels penned on this map are in a different hand than the title written on the Plan du fort de Pentagouet, the details of cartography are consistent: relief indicated by parallel lines in brown ink, identical patterns for woods, rocky areas, and shoreline, and similar stylized houses within the fort represented in the same oblique perspective amidst an overly generous parade ground.

4 "Instructions pour le Chevallier de Grand Fontaine, 5 Mars 1670," *Collection de Manuscrits*, vol. 1, p. 193.

5 "Report of Grandfontaine, [1671]," Archives Nationales, (Paris), Archives des Colonies, C11D, vol. 1, f. 139. This report is actually a summary of the original made by some minor official of the ministry of the marine. Most of the original paperwork which constituted this report apparently has not survived. Other pieces, such as the map of Penobscot Bay, its original key, and Plan 2 have been filed in various locations in the Archives Nationales and the Bibliothèque Nationale in Paris.

6 Lester A. Ross, *Archaeological Metrology: English, French, American and Canadian Systems of Weights and Measures for North American Historical Archaeology*, History and Archaeology, no. 68, Parks Canada, (Ottawa, 1983), p. 76.

7 This discrepancy does not arise just because the French at Pentagoet were using a shorter pace than usual. An estimate of the length of the hypothetical pace in use at Pentagoet can be calculated by dividing the sum of the measurements recorded archaeologically by the sum of their equivalents from each document, and is listed in Table 4.1. The calculations for the length of the pace in all three cases are surprisingly consistent, ranging from 56 cm to 60 cm. This "pace" is, however, far shorter than that in the king's system of 81.21 cm or that of 75 cm calculated empirically by averaging the pace of the modern archaeological crew. If taken literally, the figures calculated from the documents would suggest either that the soldiers who took the original measurements shuffled about the fort or that they were less than about 1.35m [4 ft. 5in.] tall!

8 This was exactly the strategy chosen by Charles W. Noyes, *Plan of Fort Pentagoet 1670-1907*, (1907).

9 This facet of the project was funded jointly by the Maine Historic Preservation Commission and Detection Sciences Group of Groton, Massachusetts in 1982.

10 Jeff L. Kenyon and Bruce Bevan, "Ground-penetrating Radar and its Application to a Historical Archaeological Site," *Historical Archaeology*, vol. 11, (1977), pp. 48-55.

11 After an initial test survey of the site in the fall of 1981, a second set of readings, offset one meter from the first, was taken in the spring of 1982 using an improved antenna. While two sets of data theoretically give a resolution to 1 m^2 on the site, only the second set of data were used here.

12 While the entire lawn was surveyed, only the area containing the principal anomalies is shown. The plan shows the initial predictions made prior to excavation, and has not been modified subsequently. Some major features were which were missed in initial interpretation can now be readily identified on the scans, but to alter the plan after the fact would misrepresent the technique's usefulness as a predictive tool. Ground-penetrating radar scans, like lie detector results, can be influenced by the expectations of the operator. Note that only in rare instances were walls predicted where no substantial architectural feature existed.

13 Alaric Faulkner, "Pentagoet: A First Look at Seventeenth-Century Acadian Maine. *Northeast Historical Archaeology*, 1982, vol. 10, pp. 51-57.

14 Alaric Faulkner, "Excavation of Pentagoet: a 17th Century Acadian Site in Maine, 1982-1983 Field Season," interim report to the National Endowment for the Humanities, (1983), ms. on file, Historical Archaeology Laboratory, University of Maine.

15 The test pitting actually was prompted by ground-penetrating radar predictions of a large iron anomaly, thought to be a cannon, within the northwest bastion. Although the iron object was not found in the small test pit, the test did successfully locate the corner of the curtain and probably a small portion of the northwest bastion. This provided a precise length for the western side of the compound: 23.90 m.

16 All post-Pentagoet features were removed in excavation, but Pentagoet III architectural features, particularly hearths, were left in place.

17 The well was designated "Structure 6" in the field, as it was originally perceived to be an independent structure. While it is now thought to be a feature within Structure 7, the original designation has been retained.

18 This project was promoted by the authors and supported by the town of Castine, The Maine Historic Preservation Commission, Senators William Cohen and George Mitchell, and many other parties interested in the protection of Pentagoet. The completed structure should protect the site from further storm damage well into the next century.

19 Peter D. Hall, pers. comm., August 27, 1981. Dr. Peter D. Hall of Wesleyan University in Middletown, Connecticut, an historian with professional experience on several excavations, recovered 166 artifacts from Pentagoet in 1976 and subsequently donated his collection to this project. The materials were salvaged during the installation of a culvert in the stream just north of the fort's entrance, and indicate the location of a major accumulation of refuse in that general vicinity.

20 J. C. Harrington, "Dating Stem Fragments of Seven-

teenth and Eighteenth Century Clay Tobacco Pipes," *Quarterly Bulletin of the Archaeological Society of Virginia*, (1954), vol. 9, no. 1. Lewis R. Binford, "A New Method of Calculating Dates From Kaolin Pipe Stem Samples," *Southeastern Archaeological Conference Newsletter*, (1960), vol. 9, no. 1, pp. 19-21. The original version of Binford's formula is used in the subsequent analysis: $y = -38.26x + 1931.85$, where y is the calculated date, and x is the mean bore diameter measured in 64ths of an inch. The method is least reliable at the two extreme ends of the dating range. Pipes from the middle decades of the 17th century often appear to date earlier than expected, while pipes of c. 1750 and thereafter reach the practical limit beyond which there is no regular decrease in bore diameter, and therefore the pipes can not easily be distinguished from later specimens.

21 Iain C. Walker, "An Archaeological Study of Clay Pipes from the King's Bastion, Fortress of Louisbourg," *Canadian Historic Sites* No. 2, Parks Canada, (Ottawa, 1971). Also Iain C. Walker, *Clay Tobacco Pipes, with Particular Reference to the Bristol Industry*, History and Archaeology, nos. 11A–D, Parks Canada, (Ottawa, 1977), pp. 285–286.

22 Instead, a cumbersome method for dating Dutch pipes on the basis of bowl form has been developed by Friederich, F. H. W. *Pijpologie: Vorm, Versiering en Datering van de Hollands Kleipijp*, Archeologische Werkgemeenschap voor Nederland, Monographie, no. 2, (Voorburg, Holland, 1975).

23 Adrian Oswald, *Clay Pipes for the Archaeologist*, British Archaeological Reports, no. 14, (Oxford, England, 1975), p. 116–117, Figure 22(14). Pipes embossed with the Dutch "Crusader-and-Huntress" motif made up 40 of a total of 126 white clay pipe bowls which were complete or nearly complete. These were generally associated with the Pentagoet III occupation. Some of the other bowls may also have been of Dutch origin, but because of the close resemblance of early 17th-century Dutch and English pipes, they have not been successfully distinguished. Interestingly, none of the Dutch marks known from Fort Orange and other 17th-century Dutch sites in New York have been identified at Pentagoet.

24 The authors have found one redware pipestem in a collection of tens of thousands of white clay fragments from 16th and 17th-century contexts in collections of the Plymouth Museum, Plymouth, England, and suggest that it came from the New World, carried back, perhaps, by a fisherman engaged in the seasonal cod fishery.

25 The cellar of a house belonging to shipmaster James Garrett, abandoned by the 1660s, was tested in 1982–1983 by Steven Pendery of Harvard's Peabody Museum. He discovered redware tobacco pipes similar to those found at Pentagoet in three strata of fill within this feature. The excavation produced 13 redware pipes out of a total of 43, or 30 % redware. The small size of the sample is of dubious value in indicating the origin of redware pipes, but the distribution of the pipes in what are apparently three separate episodes of filling is suggestive.

26 See Alaric Faulkner, "Identifying Clay Pipes from Maine: Some Rules of Thumb," *Bulletin of the Maine Archaeological Society*, (1980), vol. 20, no. 1, pp. 17-49.

27 Such agreement has to be attributed more to good fortune rather than the precision of pipestem dating, which, as has been noted, often produces unexpectedly early dates for this period. Indeed, when the 62 pipestem fragment known to date from the 18th century and 19th centuries are eliminated from the sample, the Binford date for the site is five years earlier, or 1646.

28 A certain degree of right skewness can be expected in any pipestem distribution, and does not necessarily represent a gradual increase in population of a site. For example, bore diameters reflect the gauge of the wire about which the pipestem was formed, and are occasionally enlarged just by the careless withdrawal of the wire. However the abrupt decline in the smaller bore diameters is a good indication of a rapid demise. Certainly Fort Pentagoet began its occupation with a full complement of men, but was instantly and permanently abandoned upon its destruction in 1674.

29 Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec: étude de la collection archéologique (1976–1980), Dossiers 58*, Ministère des Affaires culturelles, (Québec, 1985), pp. 27, 177–178. The second habitation was burned and partially destroyed by the Kirke Brothers in 1632; appropriately, the pipe distribution is skewed right and the data generate a mean date of 1625.

30 The foot of the stairway to the ramparts between Structures 1 and 2 had a similar late distribution.

31 Numerous other stratigraphic profiles were drawn along balks and sidewalls as excavation progressed, usually at 2 m intervals. Since they generally stop at the Pentagoet I floors, they add little to the information represented here and so have been omitted.

32 An exception, of course, is the sterile gravel fill brought to the site in the 1950s at Rev. McVicar's request.

33 William Bradford, *Of Plymouth Plantation*, (New York, 1952), p. 277.

34 See Appendix A, "Key to Grandfontaine plan of Pentagoet."

35 This toppled masonry was excavated in the belief that it was a section of wall, prior to the discovery of the hearth below. The flue, which would have been located within the confines of the original test trench, was not apparent in the disassembly of the masonry.

36 Note the thickness of the original fired daub layer, which has been exceptionally well preserved by the construction of K1 above it. Although the fired daub here has been compressed, it is, nevertheless, far thicker than at any other location within the structure.

37 See Appendix A, "Key to Grandfontaine plan of Pentagoet."

38 The water table, while adversely affecting metals preservation, did allow for the recovery of a few samples of rope, textiles, hide, and other organic materials on the cellar floor.

39 This is particularly fortunate, as a complete double-handled "marmite" or cooking pot was found directly be-

low the drain in Stratum IV, alongside a complete cross-bar shot from the bombardment of the fort.

40 "Before Present," established by convention as 1950.

41 George A. Wheeler, "Fort Pentagoet and the French Occupation of Castine," *MaineHS*, vol. 4, Series II, (Portland, Maine, 1893), p. 119.

42 A possible exception is a form of spurred tobacco pipe, Type V, which is found almost exclusively beneath the Chapel and in the Officers' Quarters (2.1). See Chapter 6.

43 The placement of the doorway is unambiguous, for there is no other position along the eastern wall which would not interfere with the cellar stairwell, and the remaining walls are continuous and intact. Its location is also indicated by the distribution of door hardware, discussed later in the chapter.

44 Measurements of room sizes here and elsewhere are exterior dimensions unless otherwise noted. To avoid inaccuracies associated with the collapse of wooden features, relative elevations of occupation surfaces are calculated using stable masonry features, in this case hearths, known to have been at floor level.

45 It is true, however, that the "Act of Surrender" of 1670 also described the complex at this stage as needing "much reparation."

46 Because the partition between Structure 2.2 and Structure 2.3 was later removed, the location of the doorway is not readily apparent. As there are no breaks in the surrounding walls, however, it must have been located along this wall. Its location is suggested by a thickening of the footings at the jambs, indicated on the floor plan.

47 The dead-end alley between Structures 2 and 7 is the site of major deposit of workshop and domestic refuse dating to Pentagoet I. Above this accumulation was a second layer of household trash—principally ceramics and bottle glass—presumed to have come from the Pentagoet III barracks. This second deposit, however, extended over the hearth and footings of Structure 7, indicating that the building had been razed early in the fort's history.

48 Isolated, and showing no obvious distinction between interior and exterior surfaces, the function of Wall N is not clear. It was surely one of the latest constructions at Pentagoet, however, and may represent work in progress at the time of the fort's demise in 1674.

49 Although this building was subsequently razed, the footings appear to have had flat, finished surfaces, and there is no suggestion that they ever were keyed into a masonry superstructure. The evidence for windows, as we shall see, was in the surrounding refuse.

50 This function was eventually neglected, however, for although the subsequent accumulation of 1 m of debris did include some pennies (1945 to 1978) the contents consisted overwhelmingly of post-1920 trash, ranging from soda pop bottles to a brake fluid can and a complete perambulator. The concrete seal, incidentally, was removed and found to be lying on sterile marine sediments.

51 Anonymous, "Castine, its History and its Relics: Field Day of the Maine Historical Society," clipping from an unidentified Portland, Maine newspaper, c. September 25, 1880, (on file Castine Scientific Society, Wilson Museum, Castine, Maine).

52 George A. Wheeler, "Fort Pentagoet and the French Occupations of Castine," (Portland, ME, 1893), Plan 3. See also Velasquez's painting of a the 17th century reproduced in Fernand Braudel, *The Structures of Everyday Life*, Harper & Row, (New York, 1981), p. 231.

53 Time constraints and the policy of leaving PIII structural remains intact prevented us from dismantling this wall to look for a palisade trench behind or beneath it. Nevertheless, upgrading wooden palisades to masonry defenses was common practice in 17th and 18th-century French fortifications.

54 The armorial crest has been copied from a stained glass window of the church St.-Sulpice d'Aulnay by Geneviève Massignon, "La seigneurie de Charles de Menou d'Aulnay, gouverneur de l'Acadie, 1635–1650," *Revue d'Histoire de l'Amérique Française*, (Montreal, March, 1963), vol. 16, no. 4, pp. 496, 500–501. It has in common with the badge a central cross surrounded by an oak leaf cluster.

55 George A. Wheeler, "Fort Pentagoet and the French Occupations of Castine," (Portland, ME, 1893), p. 119.

56 A secondary function of the Guardhouse may have been to provide access to the Chapel by means a small stairway, a feature not evident in the remains of the Dwelling.

57 Louise D. Rich, *State O' Maine*, Harper & Row, (New York, 1964), p. 208.

58 Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 107–118.

59 Mary C. Beaudry, "Homelot and Household Archaeology in Massachusetts," paper presented at the annual meetings of the Council for Northeast Historical Archaeology, Ottawa, 1985.

60 Boston's cobbles were offloaded at what was then known as the Stone Wharf, in Charlestown. Perry D. Westbrook, *Biography of an Island* [Swan's Island], p. 114. Anonymous, *Geological History of Boston*, Bicentennial edition, (Boston, 1976), pp. 74–75. Louise D. Rich, *State O' Maine*, pp. 208–210. References on the export and commercial use of Maine beach cobbles were kindly provided by Tammis Coffin of the College of the Atlantic, who is currently engaged in research on this topic.

61 For more than a century, this slate has been mistakenly identified as an import from the Mayenne area of Brittany, supposedly brought over as ship's ballast, an error was has been repeated by the authors until recently. The source of the mistake is a mistranscription made by Dr. G. Wheeler of "Estat du fort et place de Pentagouet," which appears in its correct form in Appendix A. Cf. George A. Wheeler, *History of Castine, Penobscot and Brooksville*, Burr and Robinson, (Bangor, 1875), p. 216. What was originally read as "pierre de Mayenne," should read "pierre de moyenne," which is a standard contemporary reference to medium sized building stone.

62 Paul Wingard, "Geology of the Castine-Blue Hill Area, Maine," Ph.D. dissertation, University of Illinois, Champlain-Urbana, 1961.

63 Paul Wingard, pers. comm., July, 1983.

64 Mortar of this form was also used through the 18th century in New England in the unexposed portions of chimneys, fireplaces, and hearths, and will hold up for centuries, provided it is sheltered from the elements. In 1976 Alaric Faulkner excavated the homestead of a brickmaker, Leander Felt, in Nelson, New Hampshire. The hearth, brick oven, and chimney of the Felt site (c. 1795–c. 1855) were all laid up in just such a sandy clay mortar, which is essentially similar in makeup to an unfired brick. This lime-free construction technique appears to have been the rule, rather than the exception, in poorer buildings in many parts of New England.

65 Samples of excavated masonry were left exposed between July and September of the first field season, 1981. The damage done to the top few courses during that time was extraordinary, suggesting that the entire fort would have disintegrated within a matter of months if the masonry had been left uncovered from above. Accordingly, the excavations were immediately backfilled after each subsequent field season to protect the masonry. This also implies that originally the tops of the curtain walls must have been capped in order to seal them from the weather.

66 Peter Moogk, *Building a House in New France*, McClelland and Stewart, (Toronto, 1977), p. 23.

67 For details of the masonry at Champlain's Habitation, see Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, pp. 184, 192, and Table 28, p 194. Many examples of masonry are discussed in Fort Sainte-Marie among the Hurons, and although some is in random fieldstone masonry, much of it is coursed and of tabular material like that at Pentagoet. See Kenneth E. Kidd, *The Excavation of Ste. Marie I*, University of Toronto Press, (Toronto, 1949), pp. 36–79 and Plates VII–XIX.

68 The founder, Charles de la Tour, had lived in the New World since childhood, and it should not be surprising that he chose wood as his principal construction material.

69 Peter Moogk, *Building a House in New France*, pp. 49–63.

70 Peter Moogk, *Building a House in New France*, pp. 36, 42.

71 Robert-Lionel Séguin, *Le Travail du Chaume dans la région du lac Saint-Pierre*, Centre Documentaire en Civilisation Traditionnelle, Université du Québec à Trois Rivières, Les Presses de l'Université du Québec, (Montréal, 1978), pp. 5–38. For an example of thatching similar to that found at Pentagoet see Illustrations 3 and 17.

72 Painting by Thomas Davies reproduced in Peter Moogk, *Building a House in New France*, p. 72.

73 Pierre Drobecq, *La Chemenée dans l'Habitation: sa Survivance et la Technique de sa construction*, Vincent et Fréal, (Paris, 1942), pp. 57–58.

74 Peter Moogk, *Building a House in New France*, p. 53.

75 Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 90–94.

76 The corner hearth in the Cellar Kitchen of the Dwelling did not show as much deterioration in use as the others, but it may have been protected to some degree by the damp.

77 This fireback was removed as "rubble" before its significance was understood, and so does not appear in the final photographs.

78 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 189.

79 See Albert H. Sonn, *Early American Wrought Iron*, Bonanza Books (3 vols. reprinted as 1 vol.), (New York, 1979), vol. 1., pp. 25–27 and Plate 34.

80 "Plea and Answer of Peter Rodrigo & Others," *DHSM*, vol. 6, p. 63.

81 Virtually identical barbed pintles were found at Pemaquid within Fort William Henry, 1692–1696.

82 Albert H. Sonn, *Early American Wrought Iron*, vol. 2, p. 11 and Plate 180.

83 Albert H. Sonn, *Early American Wrought Iron*, vol. 2, Plate 145. Lyle M. Stone, *Fort Michilimackinac 1715–1781: An Archaeological Perspective on the Revolutionary Frontier*, Michigan State University Museum, (East Lansing, Michigan, 1974), pp. 219–221. Virtually all the strap hinges from 17th-century contexts at Pemaquid were constructed in this fashion as well.

84 See Albert H. Sonn, *Early American Wrought Iron*, vol. 1, p. 23.

85 Lyle M. Stone, *Fort Michilimackinac 1715–1781*, pp. 235, 241–242, Figures 146 and 147.

86 Metal parts—wards and escutcheons—of stock locks have been recovered at the contemporary Clarke and Lake site reported by Emerson W. Baker, *The Clarke and Lake Company*, Occasional Publications in Maine Archaeology, no. 4, Maine Historic Preservation Commission, (Augusta, 1985), Plates 14 and 25. Such artifacts surely would not have been overlooked in excavation at Pentagoet.

87 This stock lock probably resembled a specimen described by Donald Streeter, "Early American stock locks," in Antique Metalware, James R. Mitchell ed., Universe Books, (New York, 1976), pp. 117–121, Figures 1 and 2.

88 Cf. Donald Streeter, "Early American stock locks," Figures 9 and 10.

89 Perhaps the English salvagers intended to re-fit the locks with new wards and keys as a precaution against duplicate keys in the hands of the enemy. Alternatively, the keys may not have been related to the doorways in which they were found, but may have belonged to chests which were rifled when the fort was teken by the Dutch.

90 While it is possible that some of the dozens of fragments examined actually represented the flat sides of small case bottles, it is clear that the overwhelming majority of the specimens plotted were truly window glass, showing straight cut edges, and the ghost images of the turned lead to which they were affixed. Unfortunately none of the turned lead was marked or dated in the fashion recorded by Ivor Noel Hume: *Martin's Hundred*, Knopf, (New York, 1982), p. 324.

91 Research on the glass at Pentagoet and Pemaquid was done by Peter Morrison, former undergraduate at the University of Maine. The glass of Fort Stanwix in Rome

New York was reported by Lee Hanson and Dick Ping Hsu, *Casemates and Cannonballs, Archeological Investigations at Fort Stanwix National Monument*, Publications in Archaeology, no. 14, National Park Service, (Washington, D.C., 1975), pp. 63–64.

92 John L. Cotter, "Les premiers établissements français en Acadie: Sainte-Croix et Port Royal," *Dossiers de l'archéologie*, no. 27, (1978), p.70.

93 Robert-Lionel Séguin, *La Maison en Nouvelle-France*, Museum of Man, (Ottawa, 1968), pp. 41–43.

94 Ivor Noël Hume, *Martin's Hundred*, p. 294. James Deetz, personal communication, September, 1985.

95 Plate from Diderot reproduced in Lyle M. Stone, *Fort Michilimackinac 1715–1781*, pp. 234, Figure 140(19, 20).

96 George A. Wheeler, *History of Castine, Penobscot and Brooksville*, p. 187. Charles W. Noyes: *Plan of Fort Pentagoet 1670–1907*, and *Fort Pentagoet 1670*, (1907), both published privately, on file, Historical Archaeology Laboratory, University of Maine.

97 Other sites have been completely rebuilt as public attractions with little more than a single schematic plan to go by in designing the reconstruction. For example, the first Habitation at Port Royal (1605–1613) has been dutifully reconstructed at Port Royal, Nova Scotia by Parks Canada based not on archaeological evidence, but on the medieval-like schematic plan of the settlement published by Champlain and augmented by the contemporary descriptions of the settlement given in the writings of Lescarbot. Georges-Émile Giguère, ed., *Oeuvres de Champlain*, Éditions du Jour, vol. 1, (Montréal, 1973), p. 227. The result is a full-scale, three-dimensional representation of a primitive lithograph, replete with great liberties in perspective and detail. Although of certain educational and recreational value, such reconstructions might barely have been recognizable to the original occupants.

98 Two of the more helpful references were Lewis A. Coffin, Henry M. Polhemus, and Addison F. Worthington, *Small French Buildings*, C. Scribner's Sons, (New York, 1921). Harold D. Eberlein and Roger W. Ramsdell, *Small Manor Houses and Farmsteads in France*, The Architectural Record Company, (New York, 1926).

99 The computer mockups were done by A. Faulkner on an Apple MacIntocsh™ computer using MacDraw™ and MacDraft™ and were printed on an Apple Laserwriter™. The resulting printout was an oblique "paraline" wire diagram. In paraline drawings parallel lines remain parallel, whereas in a perspective drawing they converge to one or more vanishing points. Details were filled in on these mockups by Ms. Catherine Brann.

100 Unlike the other paraline drawings, this reconstruction is done in two point perspective, and represents the fort much as it would have appeared to a viewer about 185 cm tall standing beside the southwest corner of D'Aulnay's House.

101 William Bradford, *Of Plymouth Plantation 1620–1647*, A. Knopf, (New York, 1952), p. 279.

102 A very similar layout, mixing palisade and masonry is apparent at Fort Frontenac in the Great Lakes in 1685, as shown on the plan "Fort Frontenac 13 Nov^{br} 1685," Archives Nationales, (Paris). Another plan, drawn c. 1720, shows the fort remodelled, and its curtain completed in masonry: Anonymous, *Plan du fort Frontenac ou Catarcouy*, Catarqui Archaeological Research Foundation, (Kingston, Ontario, 1985). Fort La Tour underwent similar development, although in this instance the evolution of the plan is less clear. Norman F. Barka, "Historic Sites Archaeology at Portland Point," Plan 1.

103 Samuel Adams Drake, *Nooks and Corners of the New England Coast*, Harper, (New York, 1875), pp. 75–76.

104 For further information on the identification of these projectiles see Harold L. Peterson, *Round Shot and Rammers*, Stackpole Books, (Harrisburg, Pennsylvania, 1969).

105 Therefore, in spite of the extensive activity in Castine during the Penobscot Expedition of 1779, this shot does not derive from Revolutionary War battles as some amateur historians have suggested.

106 "Memorial from Mr. Crown relating to his Title to Penobscot in New England," Baxter, James Phinney, ed., *DHSM*, vol. 10, p. 81. See also "Memorial from Count Frontenac to the Minister [Colbert], Québec, November 14, 1674 in George A. Wheeler, *History of Castine, Penobscot and Brooksville*, Burr and Robinson, (Bangor, Maine, 1875), pp. 219–220.

107 The mass or volume of a sphere, of course, should be proportional to the cube of the radius, whereas the surface area should be proportional to the square of the radius. The actual relationship between diameter and weight has been determined by using various polynomial regressions to determine the best fit. Although both a second order and a third order polynomial describe the data very well, the factor on the third order term is trivial, effectively reducing it to a second order polynomial. This test has been made both with and without the single 24 lb cannon ball, which falls far outside the range of Pentagoet's ordnance, but the results were essentially the same.

108 Although their weight is not relevant here, the diameters of the chain shot and crossbar shot fall within the range represented by the cannon balls, demonstrating that they too could have been fired from within the fort.

109 Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, pp. 29–31, and Figure 4.

110 *Ibid*, p. 40.

111 *Ibid*, Figures 1, 3, 5 and 6, pp. 429, 432, 434–435.

112 At the time of its demise in 1645, Fort La Tour was considerably larger than Pentagoet, but how much larger it is difficult to say. Reputed to have had a garrison of 45, this would have been approximately twice the complement of soldiers at Pentagoet. M. A. MacDonald, *Fortune and La Tour: The Civil War in Acadia*, Methuen, (Toronto, 1983), p. 169.

113 Norman F. Barka, "Historic Sites Archaeology at Portland Point," Plans 1–3.

114 Kenneth E. Kidd, *The Excavation of Ste. Marie I*, map 8. A later reconstruction of the plan of Sainte-Marie I,

based on further excavation, claims a much larger, and more differentiated settlement, according to Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 180–190. Here, however, we consider only the defended area exposed by Kidd's excavation.

115 Robert L. Bradley, *The Forts of Maine, 1607–1945: an Archaeological and Historical Survey*, Maine Historic Preservation Commission, (Augusta, 1981), p. 19.

116 Lester A. Ross, *Archaeological Metrology*, p. 76.

117 Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 185–186.

118 John Clarence Webster, *Acadia at the End of the Seventeenth Century*, New Brunswick Museum Monograph Series, no. 1, (Saint John, N.B., 1934), p. 19.

119 For 1635, see James Kendall Hosmer, ed. *Winthrop's Journal: "History of New England,"* Scribner's Sons, (New York, 1908), p. 159. For 1654 see Samuel Adams Drake, *Nooks and Corners of the New England Coast*, Harper, (New York, 1875), pp. 75–7. For 1671, see "Abrège du Rool de Familles de l'Acadie fait par le S. Randin, envoyé à Monseigneur Colbert, de Québec, le huit Nov. 1671," Public Archives, Canada, Ottawa, microfilm reel F 768, G 466, 9. For 1674 see "Brunet to Grandfontaine, February 4, 1674," Collection Clairambault, PAC, MG7 1A5, vol. 106, no. 864, p. 70.

120 "Thomas Gorges to Sir Ferdinando Gorges, July 7, 1643," Robert E. Moody, ed., *The letters of Thomas Gorges*, Maine Historical Society, (Portland, 1978).

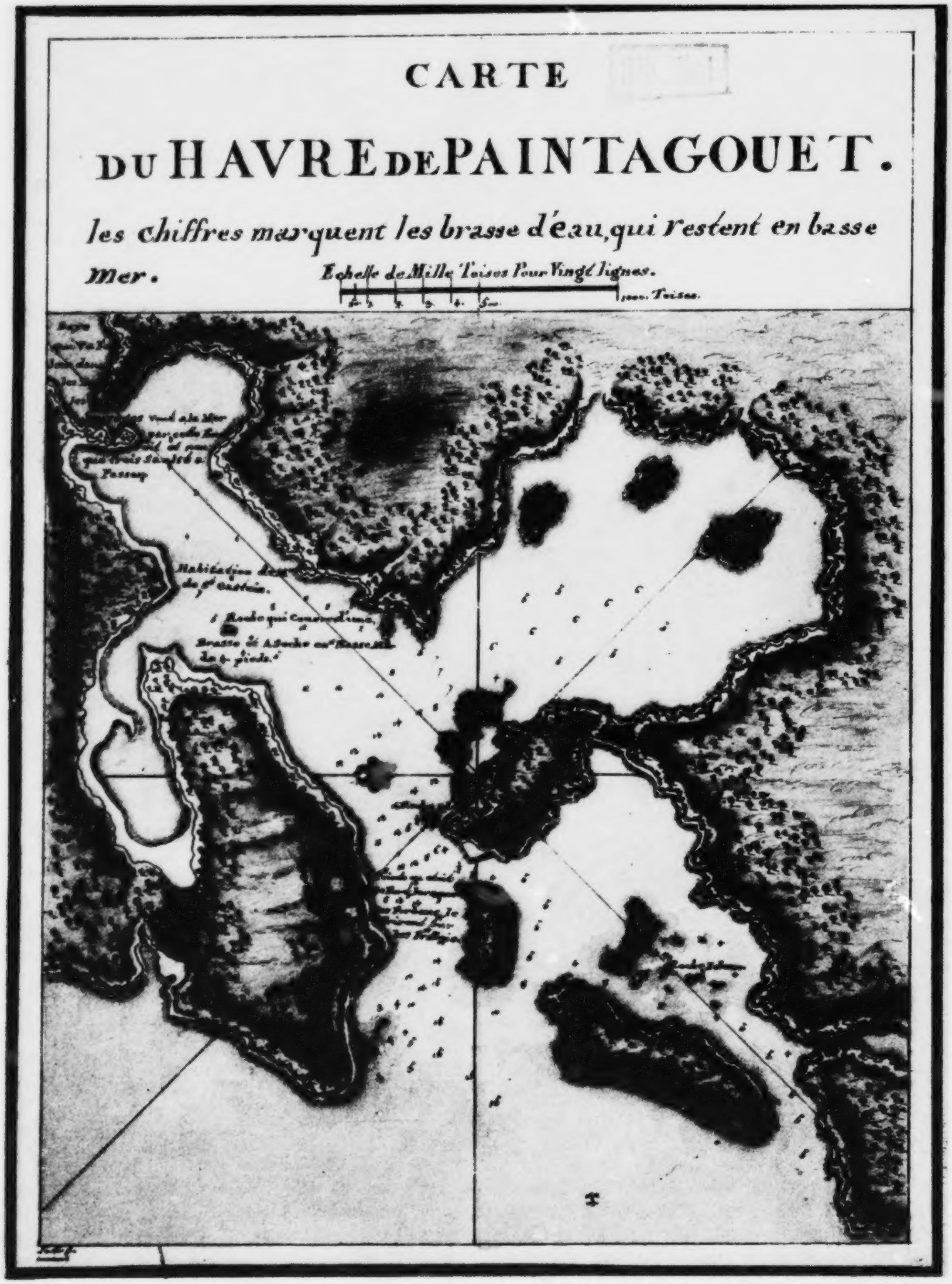

CARTE
DU HAVRE DE PAINTAGOUET.
les chiffres marquent les brasse d'eau, qui restent en basse Mer.
Echelle de Mille Toises Pour Vingt lignes.
1000. Toises.

Plate 1 Pentagoet Harbor, apparently drawn by the French cartographer Pasquine in 1688. Saint-Castin's Habitation is indicated in red on a point of land on the north side of the Bagaduce River, while Fort Pentagoet is shown in ruins as it was left by Dutch pirates under Aernouts in 1674. (Bibliothèque Nationale, Paris)

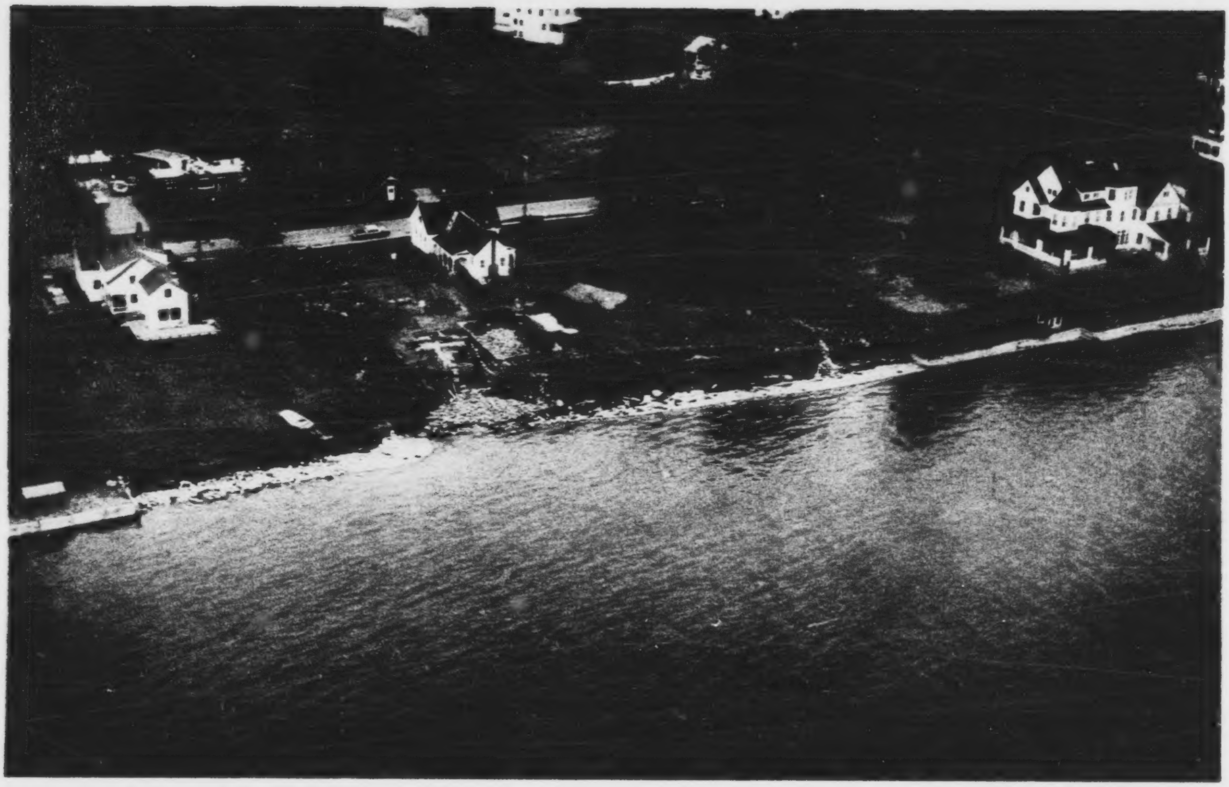
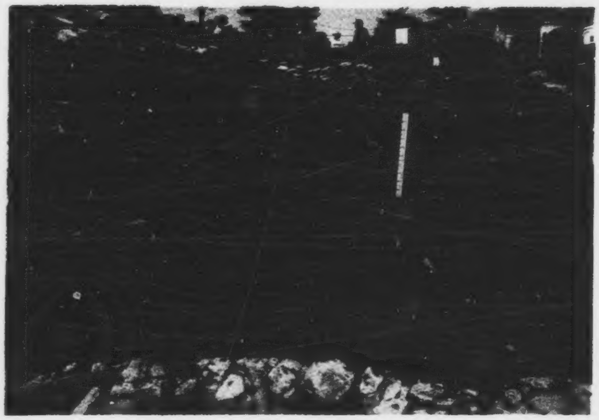


Plate 2 The site of Fort Pentagoet, on the lawn of Our Lady of Holy Hope Church, 1982. The excavation of the Dwelling, Structure 1, marks the southwest corner of the curtain. Backfill is piled immediately to the right. The northwest corner of the fort is indicated by a single test pit located between the excavation and the storage tent. The large stain on the grass has nothing to do with subsurface features, but is located near the northeast corner of the fort.

Plate 3 Cellar kitchen of the Dwelling, Structure 1.1, looking north. A tile drain, installed c. 1921 to drain the cellar of the adjacent church, has been partially removed and can be seen protruding through the cellar stairway. In the foreground are the bottom courses of the south curtain wall. In the left foreground is the kitchen hearth, and to the right is an iron and copper lid to a barrel, which may have been used for brewing cider.



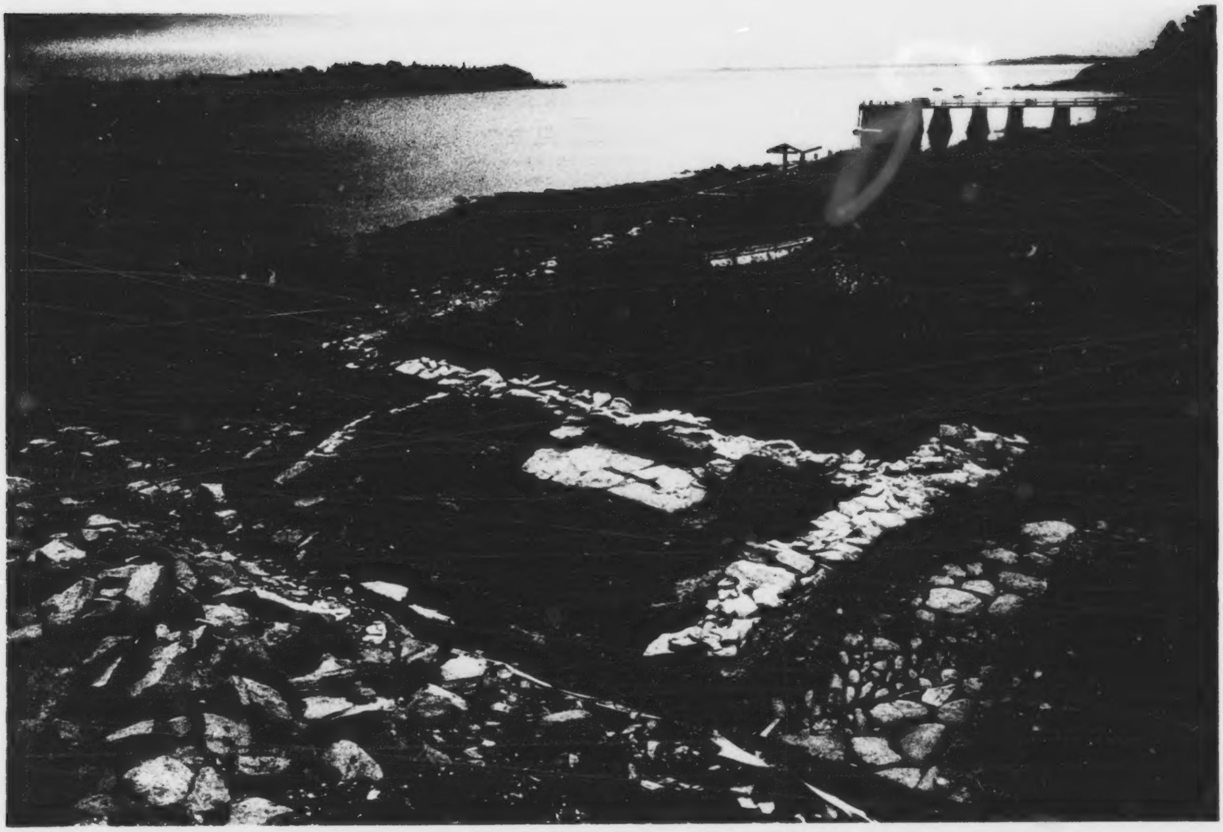


Plate 4 Structure 1, the Dwelling, a split-level house exposed in the southwestern corner of the curtain, looking southwest towards Penobscot Bay. Note the heat damage done to the masonry at the back of the fireplace from years of use. The partially exposed paving to the right is the entranceway over which stood the Chapel.

Plate 5 Cobble paved entranceway looking eastward into the interior of the fort. The field assistant is standing at the location of the right-hand gatepost of the outer gate. A break in the paving, where small cobbles change to larger paving stones, marks the location of the inner gate.

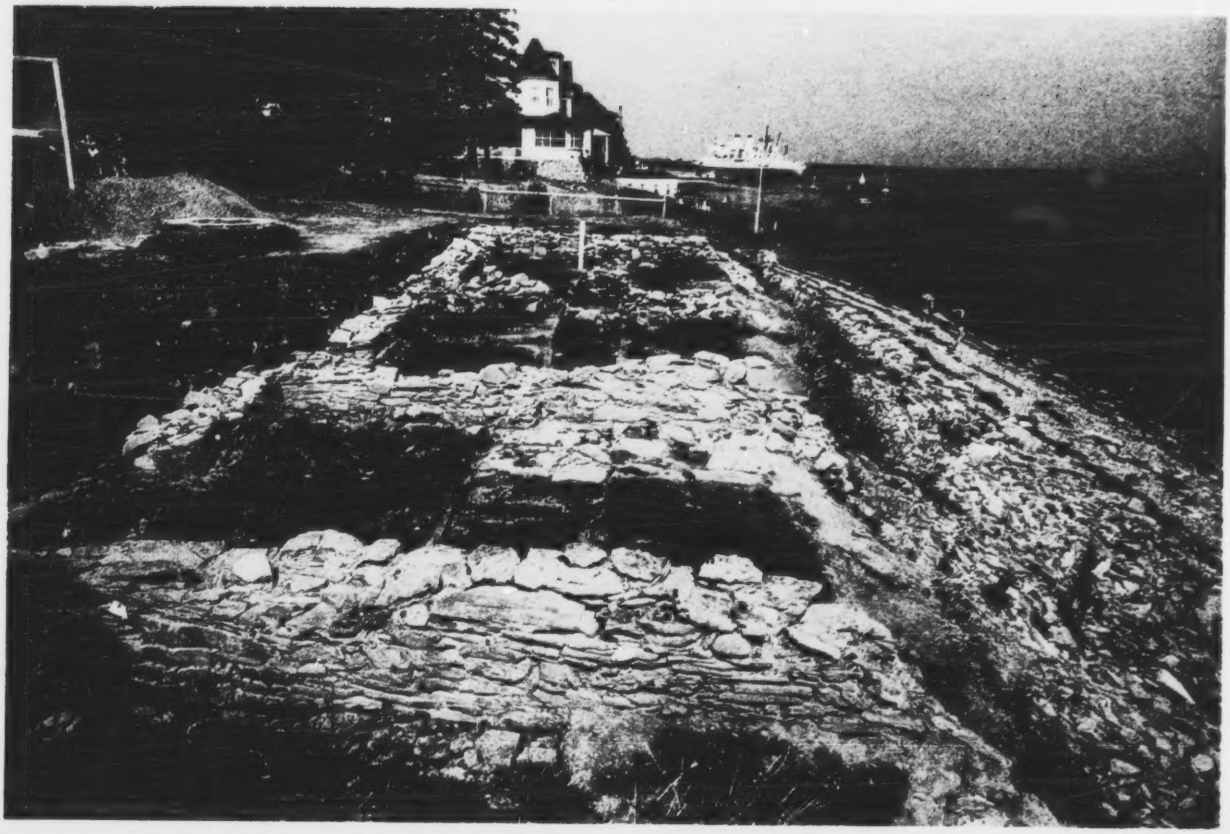


Plate 6 Structure 2, the Officers' Quarters/Barracks/Workshop complex, looking eastward along the Bagaduce River, 1983. Wave action has eroded the bank and removed the south curtain, but the remainder of the structure is intact. The Maine Maritime Academy Training vessel, *The State of Maine*, gives an indication of the depth of the channel.

Plate 7 Excavation of the floor of the Officers' Quarters, Structure 2.1. The excavator is exposing a late 19th-century post hole that penetrates the charred flooring.

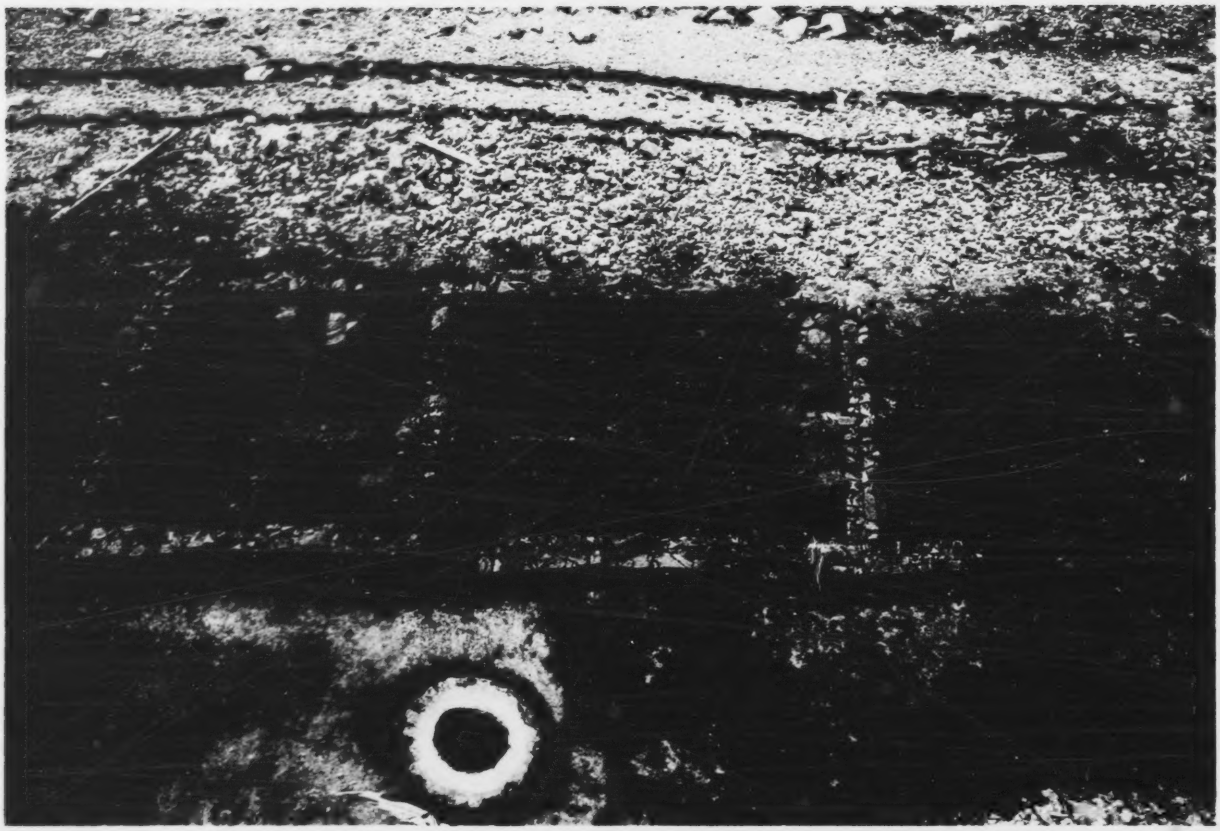


Plate 8 Structure 2, the Barracks/Workshop Complex, looking south. On the left, the hearth of the later one-room Barracks extends over the footings of the former partition between the Workshop and the Smithy. The small Officers' Quarters is at the right, its fireplace back-to-back with the forge.

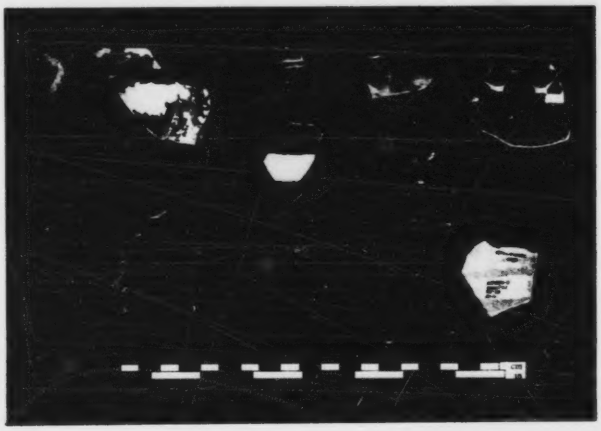
Plate 9 Interior of Structure 8, a casemate in the northeast bastion, looking west. The badly damaged north curtain wall wall is at left. Note that the fieldstone masonry of the far wall has collapsed, partially closing a passageway. Stains in the earth mark the location of sleepers and sills which supported the flooring. This structure apparently formed the underpinnings of a watchtower which stood above it.

Plate 10 A cache of four clay pipes *in situ*. These pipes were found under a layer of fired clay daub and thatch next to the East Curtain (N65E115). By chance, they were protected by the thatch when the stone curtain toppled over them in 1674. Note the matrix of charcoal and red fired daub in which the pipes are embedded.

Plate 11 Cache of four clay tobacco pipes. *Top and upper middle*: nearly complete and complete redware "export" models, stem length 13.5 cm. *Lower middle*: nearly complete white clay export model, which has a Tudor rose mark on the bowl, facing the smoker. *Bottom*: large belly bowl model bearing the heelmark "LE" of Bristol pipemaker LLewellin Evans, at work between 1661 and 1686. Note that while the white clay pipes are of English manufacture, their redware imitations were probably made locally, perhaps by the Drinker family of Charlestown and Boston or some other New England potter.

Plate 12 Prinicipal forms of utilitarian, buff bodied earthenware. *Left*: a typical green glazed storage jar with a single strap handle, Type GG2. *Right*: a yellow glazed *marmite* or cooking pot with two rod handles, Type YG1. Note that both specimens are glazed only on the interior of the rim to keep their lids from sticking.

Plate 13 Refined green glazed earthenware. *Top row*: rimsherd of apothecary jars and bowls, Type GG3. *Bottom left*: three-ply rope-like handle, perhaps from a pitcher, Type GG3. *Bottom right*: three sherds of a small rilled pot, glazed yellow on the interior and green on the exterior, Type GG3b.



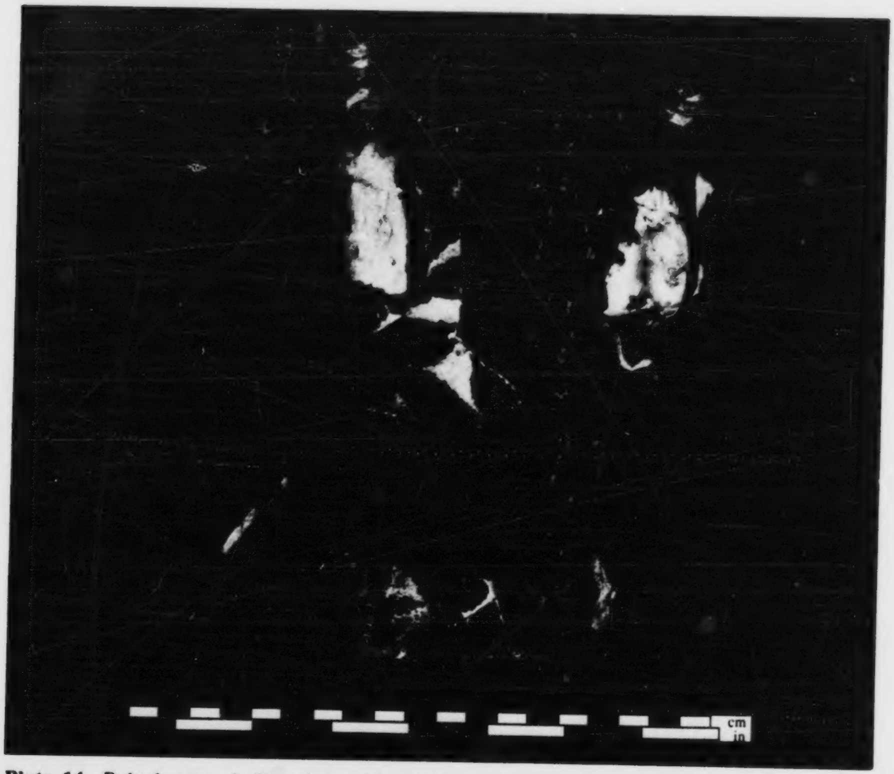
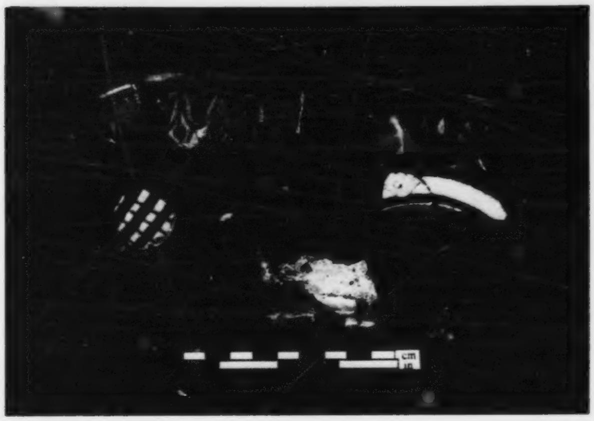


Plate 14 Polychrome chafing dish with relief molded masks, Type PC2.

Plate 15 Reconstruction of relief molded polychrome chafing dish, Type PC2.

Plate 16 Delftware. *Top row*: blue-on-white plates in tulip and wavy line motifs, Type TG2. *Middle row left*: two, round gaming counters made from blue-on-white plates, Type TG2. *Bottom*: base of a plain delftware apothecary of albarello form, Type TG1. Note the buff color of the paste in all specimens.



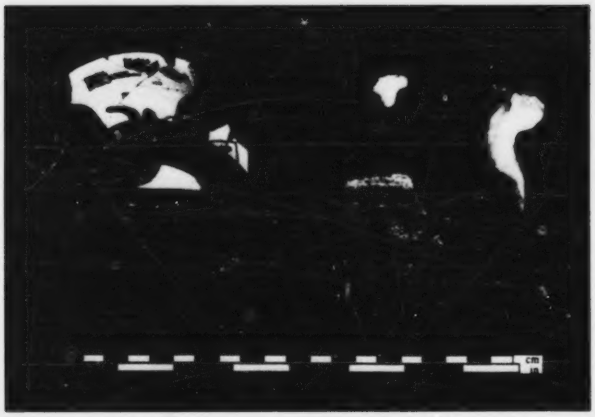


Plate 17 Faience. *Top left*: small polychrome cup or bowl, Type TG4. *Top middle and right*: decorative molded handles, plain faience, Type TG3. *Bottom center*: plate rimsherd, Type TG3. Note the red color of the paste on all of these specimens.

Plate 18 Fragments of a beige bodied stoneware mug or tankard with sprig molded rosettes, Type SW2. This type is thought to be a Walloon product, made in competition with the more familiar gray bodied Rhenish ceramics from the Westerwald area.

Plate 19 Bartmann or "Bellarmine" bottle fragments of gray stoneware, glazed brown in the Frechen style, Type SW3. *Top left*: rim fragment. *Top right*: coat of arms of Cologne, accented with a splotch of dark cobalt blue. *Bottom left*: pear shaped jug with a rampant lion on a medallion, probably representing the House of Nassau. *Bottom right*: coat of arms of Amsterdam, bearing the partial date "16—."

Plate 20 Complete bartmann bottle with stylized rosette, similar to a specimen form Fort La Tour. This example was collected by Dr. George Wheeler, a 19th-century amateur historian and afficionado of Pentagoet and early Acadia, and is believed to have come from Pentagoet. Muck is still present in cracks in the jug suggesting that it may have been recovered from the well of the Magazine, excavated at Wheeler's behest in 1892.

Plate 21 Brass and iron cover *in situ* on the floor of the cellar kitchen of Structure 1. Originally thought to be the cover to a large brass kettle or pot, it is now interpreted as a rain barrel or cider barrel lid.

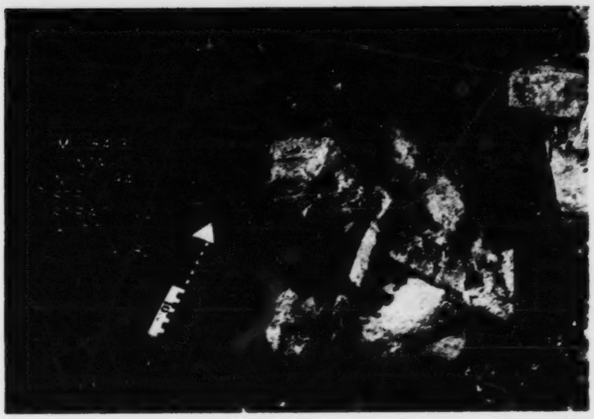


Plate 22 Textiles. *Top row*: gold braid; small frog or button braided around a copper wire form; fragment of a moose or ox hide garment. *Bottom row*: braided belting, thought to belong to a *porte-épée*; plain woven red worsted; plain knit garment. The moose hide and knitted garments were found together with a red-striped bead (Plate 23), all in association with the remains of a chest recovered from the cellar of the Dwelling (1.1).

Plate 23 Glass, wood, bone and shell beads. *Top row* (all drawn glass): round red-on-light blue striped, Type IIb 54; small round white, Type IIa13; small tubular white, Type Ia4; opaque red bead on a black and white core, Type IIIa2 (possibly Post-Pentagoet). *Middle row* (all drawn glass): round blue, Type IIa46, side and end views; small, round blue, Type IIa37, side and end views (Post-Pentagoet). *Bottom row*: carved wood rosary bead; carved bone bead (Post-Pentagoet); shell disc bead, (Post–Pentagoet?). All specimens occur as single examples except for the two monochrome blue beads of which there are eight each. Except as noted, these beads come from 17th-century occupations of the fort. Glass bead classifications follow the Kidd and Kidd typology.

Chapter 5

Maintenance and Fabrication
Products and By-Products of the Smithy

The Pentagoet artifact assemblage contains a remarkably clear record of on-site maintenance and manufacture of tools and equipment. This paraphernalia, by virtue of its hard use, upkeep and frequent replacement, must have been essential to daily operation of the outpost. The collections show evidence of highly diversified maintenance and fabrication covering a wide variety of technologies. Pentagoet's work force included one or more craftsmen competent in complex forging, gunsmithing, and gunspall manufacture. Requiring less sophistication were the remanufacture of sheet copper and brass scrap into various makeshift everyday objects and trade items, and the production of lead balls and shot. The services represented by these activities must have been crucial not only to the survival of the garrison, but also to the aboriginal population who were now committed to the fur trade and totally dependent on certain products of European technology.

Most of the evidence for these operations survives amid the refuse of the Smithy, accumulated during Pentagoet I, 1635–1654.[1] The focus of a few representative activities—iron forging, including gunsmithing and ax repair, and reworking of sheet copper and brass—is apparent in the distribution of scrap shown in Figure 5.1. The primary concentration of this debris lies within the Smithy and immediately outside in the alley between the Barracks/Workshop complex and D'Aulnay's House, Structures 2 and 7, while a secondary accumulation occurs within the cellar kitchen of the Dwelling.[2]

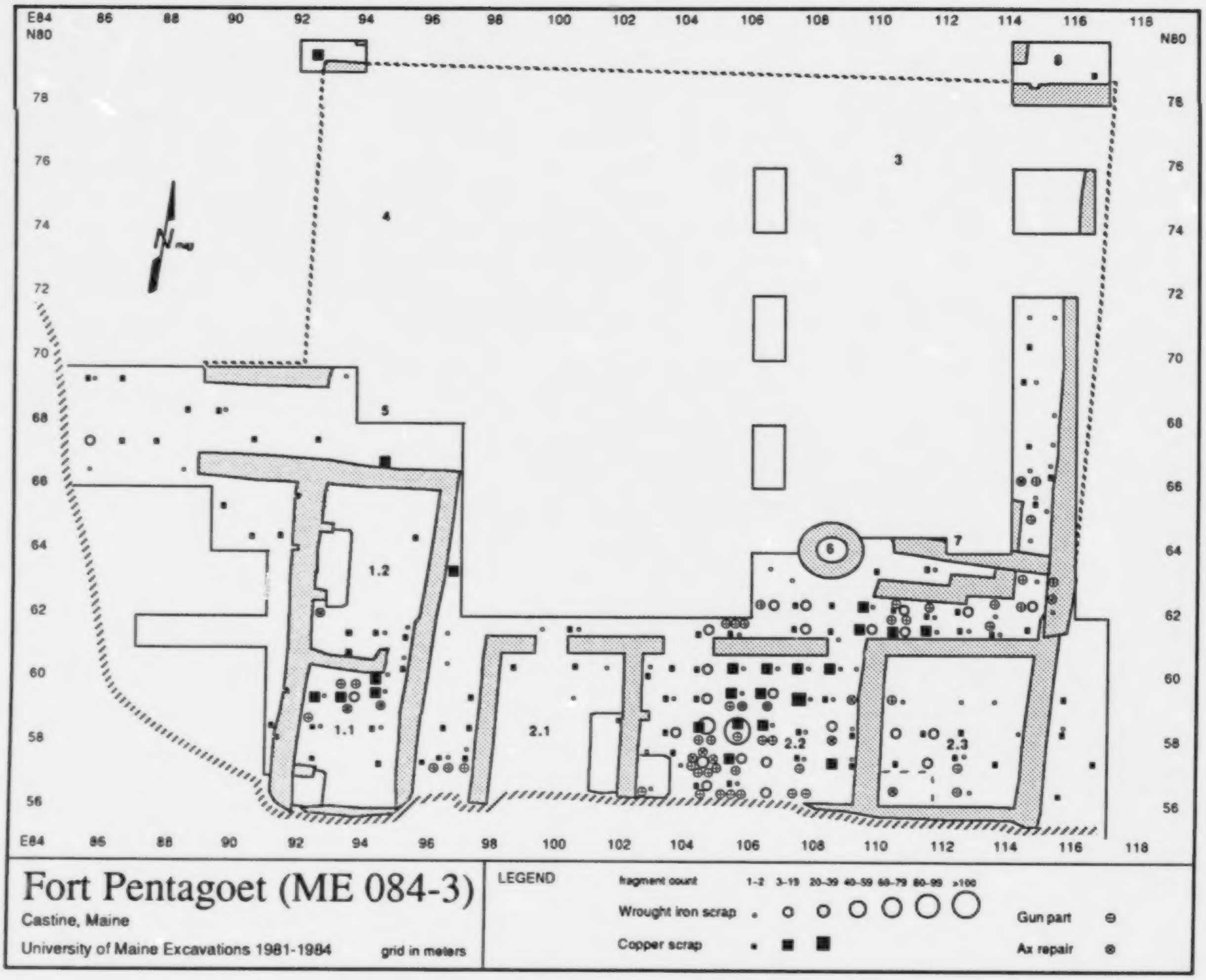
The clusters of different raw materials and products within the Smithy indicate that this room was subdivided into distinct work areas. As is to be expected, debris from iron working, including ax repair, is concentrated towards the southwest quadrant of the Smithy near the forge. Gun repairs were apparently conducted nearby, as several gun parts cluster along the south wall of the Smithy. Copper and brass scrap seems to have a complementary distribution, the bulk of it concentrated along the northern half of the building, between the two doorways.

For this entire accumulation it should be borne in mind that the refuse represented is overwhelmingly just that. These Pentagoet I remains must have been thoroughly picked over and scavenged prior to remodelling the workshop into a barracks—a depositional context very different from that of the Pentagoet III assemblage, much of which was abandoned in place and sealed under tons of slate rubble upon the demolition of the fort by the Dutch. Thus they do not, for the most part, represent the stockpile of reusable material often associated with an active smithy. Rather they are items which were left here because they were broken beyond repair or reuse, presented no prospect of salvage and remanufacture into something new, or were hopelessly obsolete.

In all probability, the primary responsibility for fabrication and repairs at this small fort was delegated to an armorer. In 1642 Geoffroy Robert was engaged by d'Aulnay's chief French rival to serve for three years at Fort La Tour. Two years later d'Aulnay hired Germain Doucet to serve at Pentagoet as "Captain at Arms," possibly also an armorer.[3] Armorers were key personnel in maintaining all settlements in 17th-century Québec and Acadia; at least 206 have been identified in New France in the 17th and early 18th centuries. Often recruited as *engagés*, or indentured servants, they were, nevertheless, among the highest paid of all tradesmen. They are described with about equal frequency as *arquebusiers* (gunsmiths), *serruriers* (locksmiths), *taillandeurs* (cutting tool makers) or *armuriers* (armorers), but apparently all were skilled *forgerons* (blacksmiths) as well.[4]

Blacksmithing

It is apparent that many of the maintenance requirements of the fort were met at the forge. The remains of its footings indicate that this feature was nearly square, measuring approximately 1.4 m broad and 1.2 m deep. Like the rest of Pentagoet's masonry, the forge was constructed of slate, and it stood back-to-back with the fireplace of the adjacent house, Structure 2.2 (Figure 5.2).[5] Recall that the Smithy was only partially roofed during Pentagoet I, perhaps as a fire precaution; a contemporary forge of comparable size at Sainte-Marie I, the fortified Jesuit mission in Huronia, appears to have been located within an open smithy as well.[6] This arrangement—a workspace open to the air except for a


E84
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1.1
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3
4
5
6
7
Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND
fragment count 1-2 3-19 20-39 40-59 60-79 80-99 >100
Wrought iron scrap
Copper scrap
Gun part
Ax repair

Figure 5.1 Distribution of scrap from iron and copper working, including gunsmithing and ax repairs.

small shed roof over the forge itself—has been suggested as the norm for 17th-century armories in the New World.[7]

Other than the footings, the remains of the forge itself are sparse, as it was dismantled long before the destruction of the fort. The *tuyere*, or air blast nozzle, is represented by its impressions in the slag which formed around the end of the pipe—a deposit which had to be removed periodically (Figure 5.3*f*). The bubbles in these slag casts indicate that the tuyere was mounted at the side of the forge, rather than at the bottom as in some more modern designs.[8] The bellows themselves are represented by a few broad-headed brass tacks which apparently attached the leather of the bellows to its wooden frame (Figure 5.3*c*–*e*).

The general location of the anvil is suggested by the great concentration of iron scrap in front and to the right of the forge. Many of these pieces had been cut off the workpiece using the sharp edge of the hardy, a upright chisel-like attachment which fit into a socket in the end of the anvil. In the center of this concentration was a pit which produced 183 badly rusted pieces of iron scrap cut in this fashion.[9] This may have been the remains of a subterranean slack tub, a reservoir of water used for quenching iron in the process of heat treatment. Such shallow holes in the ground were apparently used by 17th-century armorers in lieu of the more familiar wooden tub.[10]

The Pentagoet forge and the associated strata within and around the Smithy were littered not only with iron scrap, but also with highly vitrified slag and lumps of hard coal, (Figure 5.3*a*–*b*). While the source of the fuel has not been positively identified, it is highly likely that it came from the rich coal fields of northern Acadia. Father Biard in 1616 listed coal as one of the major geological resources of Acadia, and it is clear that by 1636 settlers in Québec intended to take advantage of this fuel, although at this time they lacked the ships necessary to transport it.[11] Coal on Cape Breton, lay "on the very surface," and surely must have been used by the Acadians themselves during Pentagoet I. At the English takeover in 1654, coal ranked just behind fish, fur, and timber as one of the principal natural assets of Acadia; thereafter the fuel was heavily exploited by Boston merchants who apparently redistributed it throughout New England and the West Indies.[12] An English merchant lamented this loss of revenue when the French regained control of the forts of Acadia in Pentagoet III and took over mining operations:

> By the grant of these forts they doe engroase [monopolize] a Cole mine and will not suffer o^{r} English Merchantmen to have any, w^{ch} coles are obtained with much ease, and have been of great use to those parts and the West Indies.[13]

Coal-fired forges appear to have been unusual in the northeast during the 17th century. In most cases, as at Sainte-Marie I, charcoal was chosen because it was a cleaner fuel and did not have to be imported.[14] The coal used at Pentagoet, however, was apparently suitable for work at the forge because it was low in sulfur, and would not make the iron unduly brittle.[15] This fuel made it far easier for the ar-

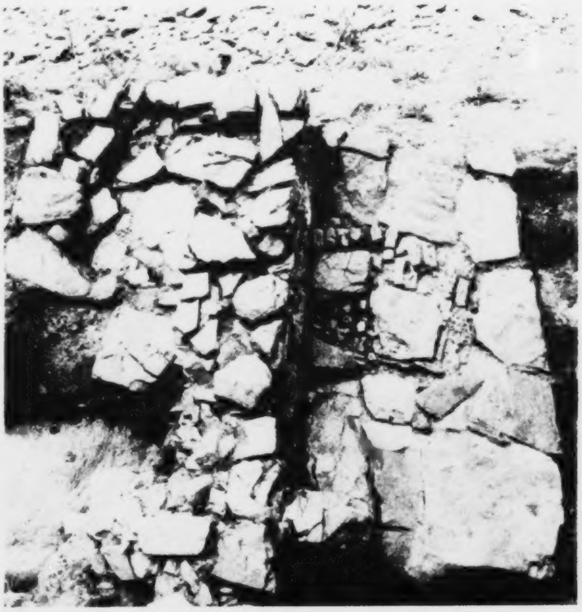

Figure 5.2 Detail of the forge (*upper left*), back-to-back with hearth of the adjacent house, Structure 2.1.

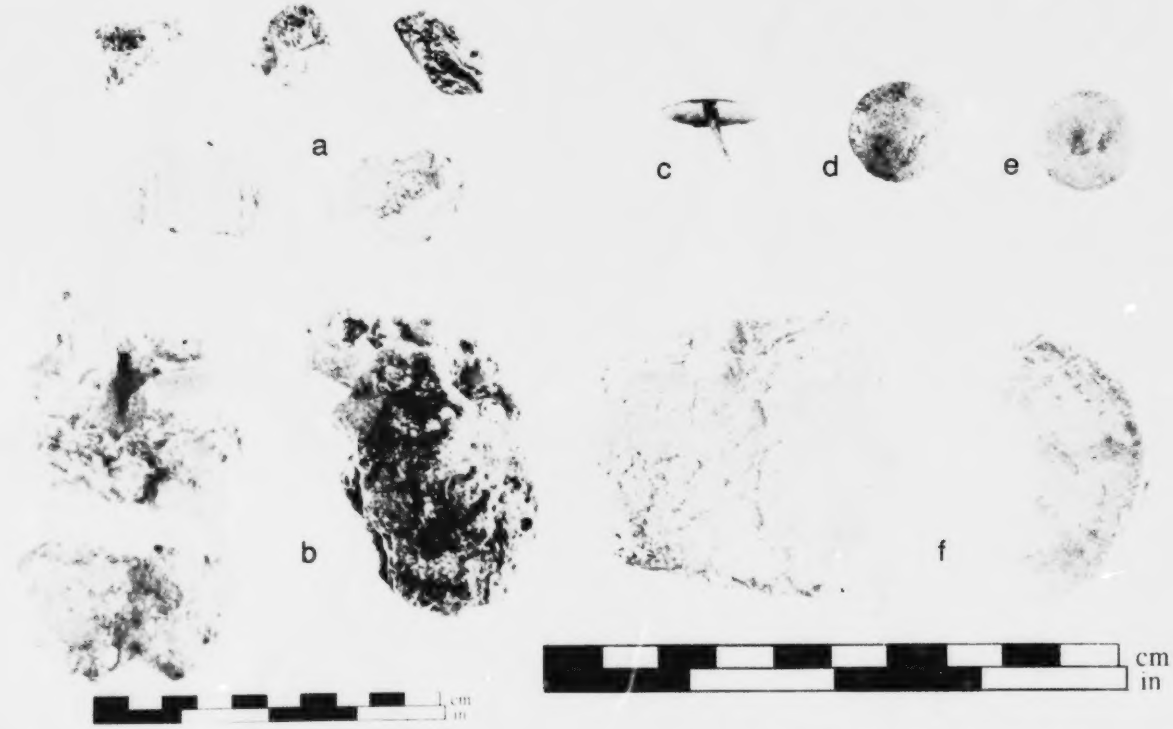

Figure 5.3 Forge evidence: *a*, hard coal fuel; *b*, slag sample; *c–e*, tacks, thought to have been used to fasten bellows to its wooden frame; *f*, impression in slag of the side mounted tuyere or air blast tube, side and end views.

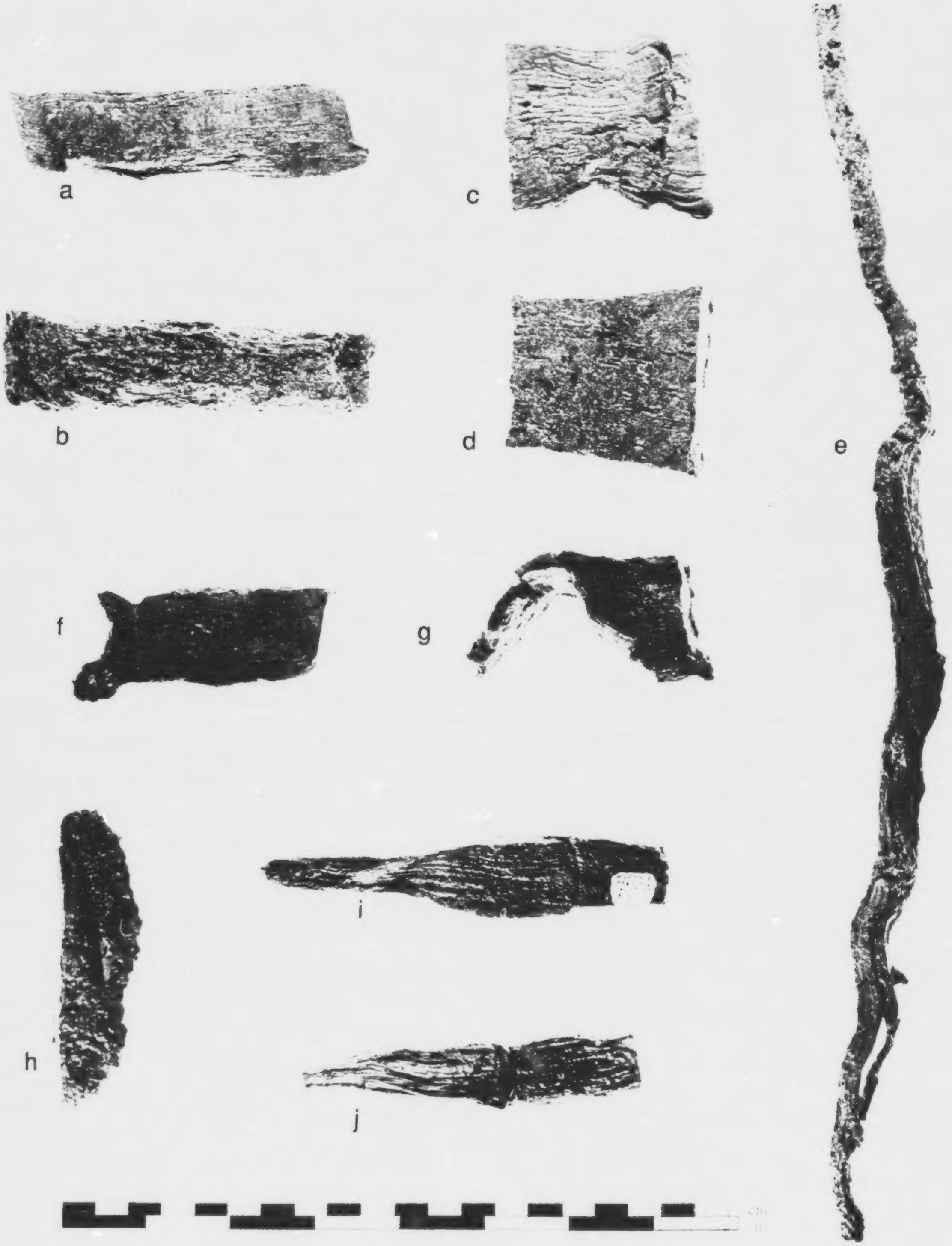

Figure 5.4 Iron stock and scrap cut off using the chisel-like edge of the anvil hardy: *a*, square bar stock; *b*, square bar stock, hammered round; *c–d*, flat stock; *e*, scrap cut from the edge of flat stock with heavy shears; *f–g*, scrap cut from complex forgings; *h*, scrap ax bit, on which a misplaced blow at the anvil has preserved an impression of the hardy's edge; *i–j*, lap welds probably used to provide temporary handles for stock being forged.

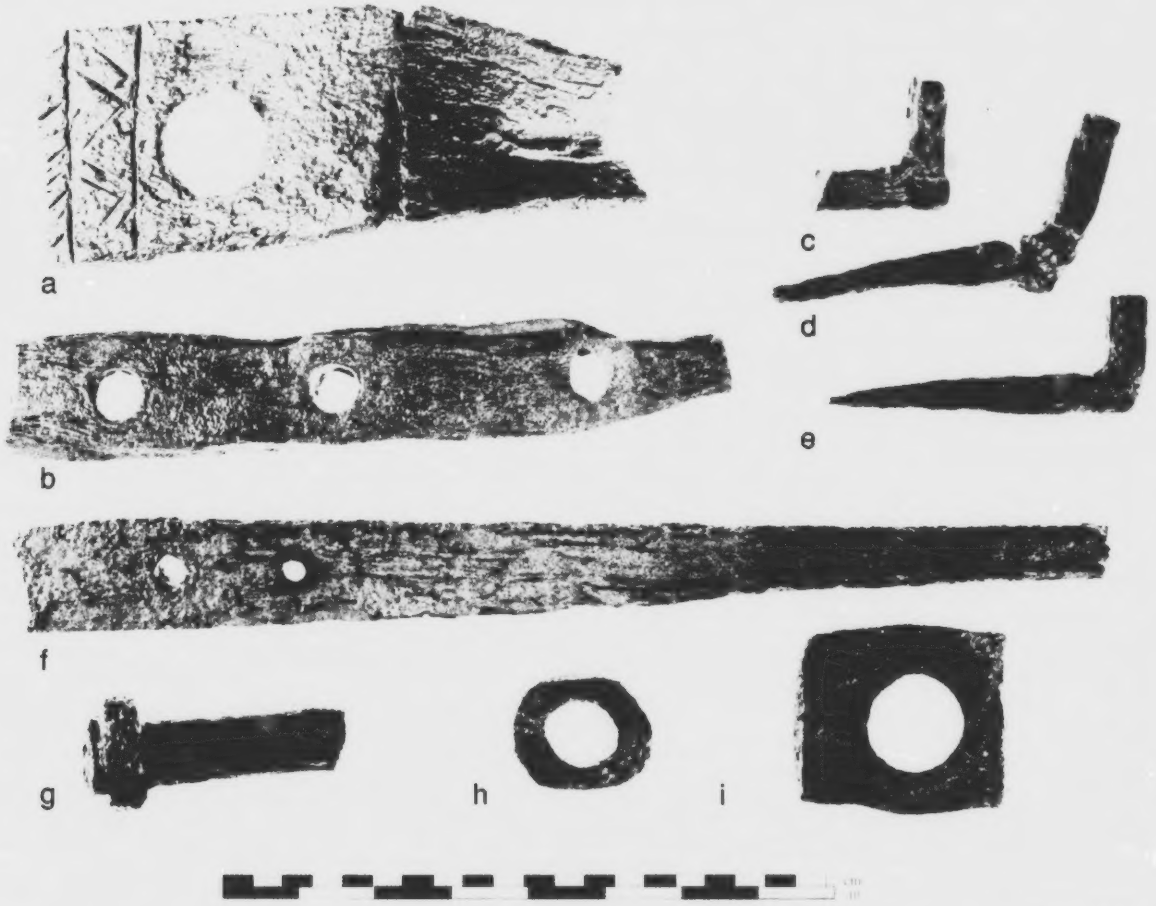

Figure 5.5 By-products of the repair and manufacture of structural hardware: *a–b*, scrap cut from recycled heavy strapping (note chevron decoration chiseled into the surface of *a*); *c–e* pintles (*c*, cut at hardy; *d*, broken, perhaps in forging; *e*, finished); *f*, scrap from unidentified bar fitting; *g*, tie rod with retaining collar, cut at hardy; *h*, forged washer; *i* simple washer cut from flat stock.

morer to achieve the high temperatures necessary for forge welding, and must have been a significant improvement over charcoal.

The wrought iron scrap left behind in the Smithy gives some indication of the forging practices at Pentagoet. Several pieces show that the smith was supplied with bar stock, most of it square in section, and the rest broad and flat (Figure 5.4*a–d*). Stock that was too long was simply snipped off by placing it over the anvil hardy and striking it with one or two blows. Pieces which were too broad were struck repeatedly on the hardy or were cut with large shears, producing long, jagged trimming pieces (Figure 5.4*e*). Other pieces of scrap apparently went through several stages of forging before being removed as excess (Figure 5.4*f–g*). If a workpiece became too short to manipulate effectively, a rod or piece of scrap was lap-welded to it to serve as a handle. Later, when the forging task was completed, the useless knot formed by the temporary weld was cut off and dumped in the waste pile (Figure 5.4*i–j*). In addition to these bits of stock and non-diagnostic waste, were parts of implements, fastenings, and fittings, the waste products of repairs by which worn out or obsolete items were recycled.

Structural Hardware and Heavy Equipment

As *forgeron*, the armorer or his assistant was probably responsible for fabricating, or at least replacing and repairing, much of the structural hardware described in the previous chapter. It is therefore not surprising to find numerous fastenings and fittings in various stages of repair and manufacture in the smithy refuse (Figure 5.5). Of these, door hardware, especially, pintles, seem to have required repeated repair and replacement (Figure 5.5*c-e*). In addition there are

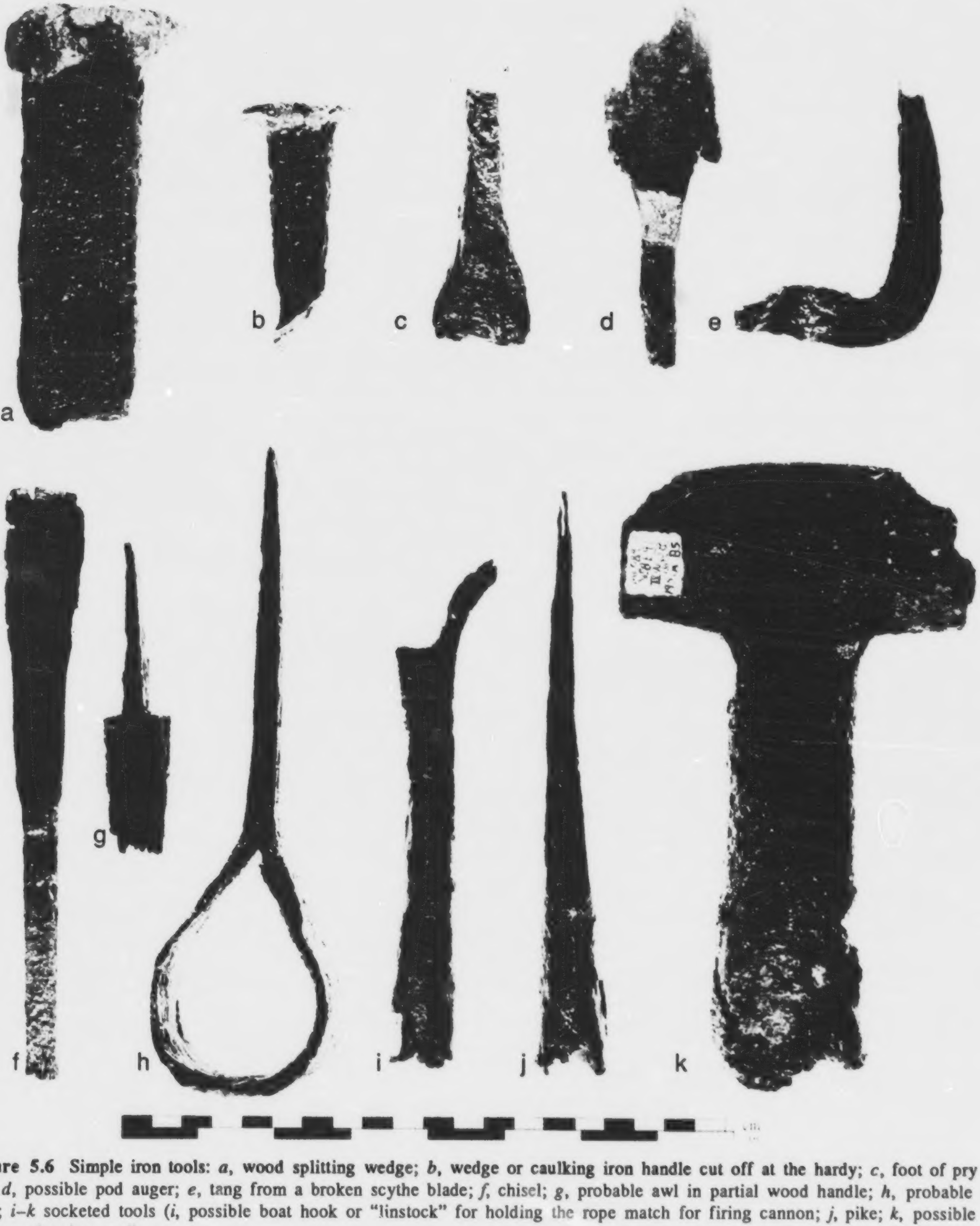

Figure 5.6 Simple iron tools: *a*, wood splitting wedge; *b*, wedge or caulking iron handle cut off at the hardy; *c*, foot of pry bar; *d*, possible pod auger; *e*, tang from a broken scythe blade; *f*, chisel; *g*, probable awl in partial wood handle; *h*, probable pick; *i–k* socketed tools (*i*, possible boat hook or "linstock" for holding the rope match for firing cannon; *j*, pike; *k*, possible cannon cleaning tool).

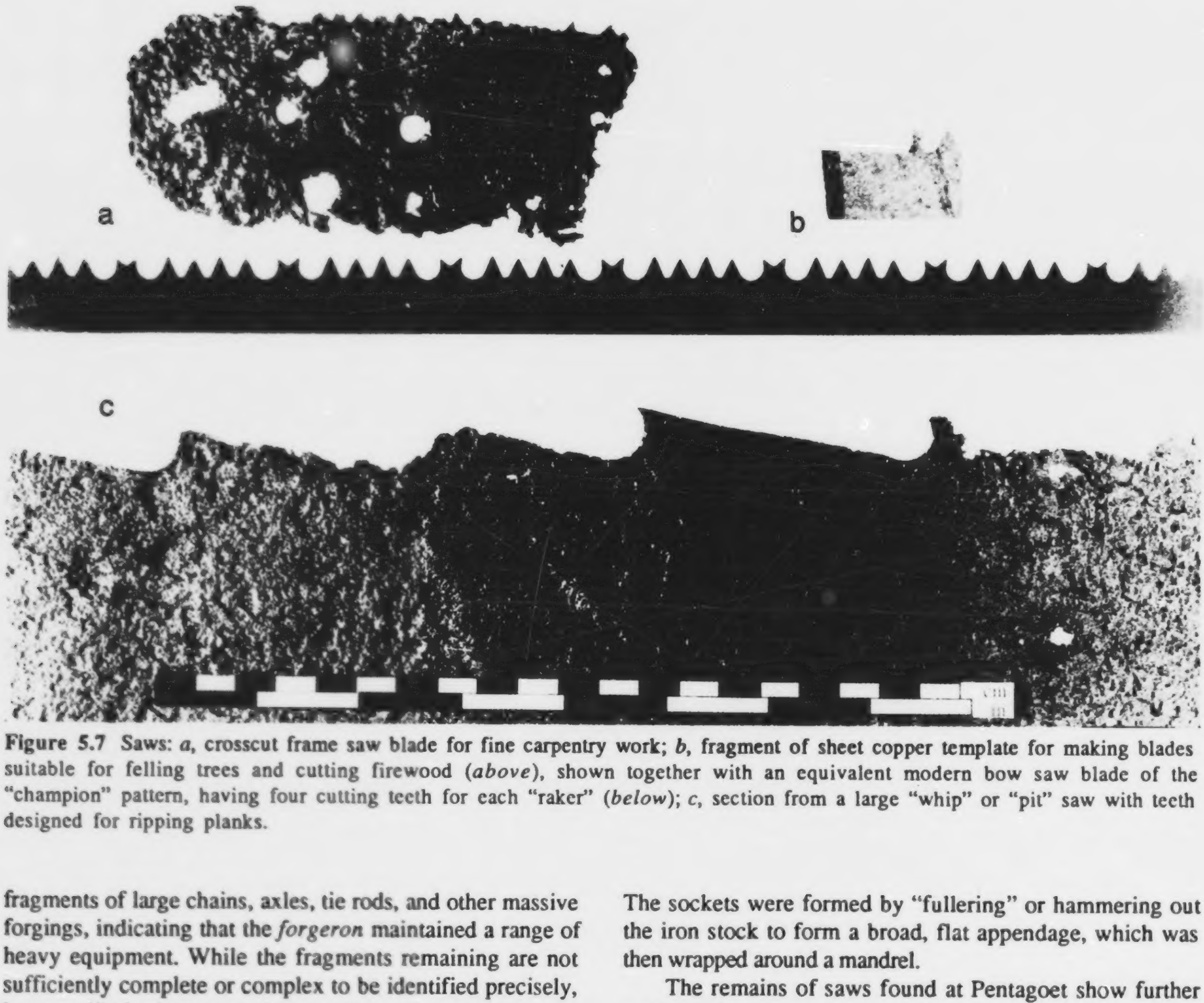

Figure 5.7 Saws: *a*, crosscut frame saw blade for fine carpentry work; *b*, fragment of sheet copper template for making blades suitable for felling trees and cutting firewood (*above*), shown together with an equivalent modern bow saw blade of the "champion" pattern, having four cutting teeth for each "raker" (*below*); *c*, section from a large "whip" or "pit" saw with teeth designed for ripping planks.

fragments of large chains, axles, tie rods, and other massive forgings, indicating that the *forgeron* maintained a range of heavy equipment. While the fragments remaining are not sufficiently complete or complex to be identified precisely, it seems likely that some of these pieces were related to the fort's heavy ordnance, while others may have been fittings for d'Aulnay's vessels.

Tools

It is difficult to establish with certainty which of the many tools found at Pentagoet were actually made at the site, but it is apparent that the smith maintained and probably produced a variety of simple tools used in everyday chores. Splitting wedges, awls, a chisel, a pod auger, a scythe, a pick-like tool, and many other implements occur in various contexts at Pentagoet, often within the Smithy/Workshop area itself (Figure 5.6*a–h*). These are all very simple items, involving only a few forging processes to produce from bar stock, and their manufacture was certainly within the capabilities of the smith. This may be true of the more complex socketed tools as well: a probable linstock hook, two pikes, and a tool which, we speculate, may have been used to scrape out cannon interiors (Figure 5.6*i–k*). The sockets were formed by "fullering" or hammering out the iron stock to form a broad, flat appendage, which was then wrapped around a mandrel.

The remains of saws found at Pentagoet show further sophistication in smithing, and diversity in the specialized tools with which the garrison was equipped. Pentagoet's smith maintained at least three different types of saws at the site: fine and coarse crosscut saws for carpentry, supplying firewood, and timbering, and rip saws for sawing logs into planks. In keeping with the competence in masonry, wood framing at Pentagoet probably met the common standards of carpentry in the Old World, and was not entirely the hand-hewn product of ax and adz. In addition, these tools would have been essential in ship construction at Pentagoet, which began in 1636 with the construction of a pinnace, and probably included several ships thereafter.[16]

The two crosscut saws were narrow-bladed frame saws, a design used at least since Roman times, and still used in modern bow saws, hack saws, and coping saws (Figure 5.7*a–b*). In this type the functions of cutting and support are divided between the two key parts of the saw: the relatively hard, brittle blade and the wooden frame which holds it in tension. Because the blade is narrow, it can effectively be steeled and tempered by a skilled blacksmith. The resulting product, thin and somewhat brittle, produces a narrow cut with relatively little effort. For this reason frame saws were preferred over unsupported broad-bladed saws for most applications until the 19th century, when modern technology permitted the separate hardening of the saw teeth on a flexible spring steel blade, as in the modern hand saw.

One of the frame saws at Pentagoet is a fine-toothed crosscut saw, its triangular teeth alternately filed and set from opposite sides of the blade. This specimen is clearly recognizable as a tool for fine carpentry or joinery work (Figure 5.7*a*.). The second, represented by a fragmentary copper template (Figure 5.7*b*), has the simple "champion" pattern.[17] In its complete form, this pattern usually has four triangular cutting teeth alternating with fork-like "rakers" which clean the sawdust from the saw kerf, and thus allow for rapid cutting. The champion pattern is still favored for bow saw blades where it serves for rough, fast work such as felling trees and cutting up firewood. It is to be expected, of course, that Pentagoet's armorer/smith would sharpen saw blades as needed, but the presence of the copper template shows that he also shaped his own saw blades from sheet stock, and was probably capable of steeling and tempering the teeth.

The third type is from a large saw with a blade 13.4 cm broad, of which two large sections were found, folded over each other, on the Smithy floor (Figure 5.7*c*). The saw blade in this case is far too large to have been set in a frame. Its widely spaced teeth are alternately set and have deep gullets designed to be filed using a rat-tail file like a modern chain saw, although in this case the teeth are filed straight across. The resulting chisel-like edges assure that the saw was designed for cutting along the grain of the wood, and so probably was an early whip saw. Such tools were used both by housewrights and shipwrights for ripping large logs into planks and beams.[18] Typically, the log to be cut was supported either on a frame or over a pit while two men worked the saw, one pulling from below to provide the cutting power, and the other standing atop the log to draw the saw back up on the return stroke. This early Pentagoet whip saw was apparently fabricated from wrought iron, with teeth which had been steeled by pounding carbon into them at the forge. Because of the malleability of the wrought iron, the blade apparently kinked in use and, after repeated straightening, it eventually broke.

Axes

Only two complete ax heads were recovered from the site (Figure 5.8*a–b*). Both were of "Form A" in Russel Bouchard's typology of axes traded at French posts in Québec, a type characterized by straight upper and lower margins and an oval eye.[19] Although it is now known that felling axes of similar form were made throughout Western Europe, specimens found in North America are commonly identified as "French trade axes," and have been found in contexts stretching from the early 17th century to the middle of the 18th century.[20] This was by far the predominant ax form at Pentagoet, represented by the two complete specimens and approximately 17 fragments.

A second form, represented by a single broken eye, is not described in the Bouchard classification, but has been identified by Carl P. Russell as of English or Anglo-American manufacture.[21] It is typical of a heavier, more modern design of felling ax, having a rudimentary "poll," or hammering surface at the back, which protected the eye and gave the tool better balance (Figure 5.8*g*). The addition of this small poll gives the head the appearance of having small "ears" along the bottom margin, a stylistic feature still retained in the modern Kentucky ax.[22] The opening in the eye was originally long and rectangular, further distinguishing it from the so-called "French trade ax." Two complete specimens identical in form, although slightly larger, were recovered from the Clarke and Lake Company site on the Kennebec River.[23] A third ax form is represented by a single broad blade, possibly from a halberd, but more likely from a broad ax (Figure 5.9*d*).

Specimens of the predominant "French trade ax" form show no consistency in manufacturing technique. The eye of the specimen in Figure 5.8*a*, for example, appears to have been formed by partially lapping the blade stock back over itself. By contrast the eye of Figure 5.8*b* appears to have been made from a separate piece, sandwiched about the blade. Note also that this specimen was fitted with a steel bit insert, evident from the mechanical fibering of the bit which intersects the fibers of the rest of the ax blade at right angles (Figure 5.8*c*). The fragmentary specimen in Figure 5.8*l* shows how such a steel insert was welded between the wrought iron leaves of the blade in manufacture.[24]

It is one matter to demonstrate the obvious fact that iron, on the frontier and elsewhere, was quite valuable. It is quite another, however, to establish that a settlement had the capability of recycling iron in an effective manner. At Fort La Tour and Fort Sainte-Marie I, broken ax blades were apparently not repaired, but rather were reused as wedges.[25] It is possible that axes in these sites were so used because there was an adequate store of replacements, or because the axes were low quality trade items to begin with, and were not considered worthy of repair. More likely, however, the settlements lacked the capability of remanufacturing these implements. By contrast, broken axes at Pentagoet were considered reparable. When bits were damaged or excessively worn, they were simply cut off at the hardy, and new steel bits welded to the old blade. Similarly, when ax eyes were damaged beyond further use, they were snipped off, and the blades salvaged. These practices were not idiosyncrasies of a particular French armorer, but apparently were well-

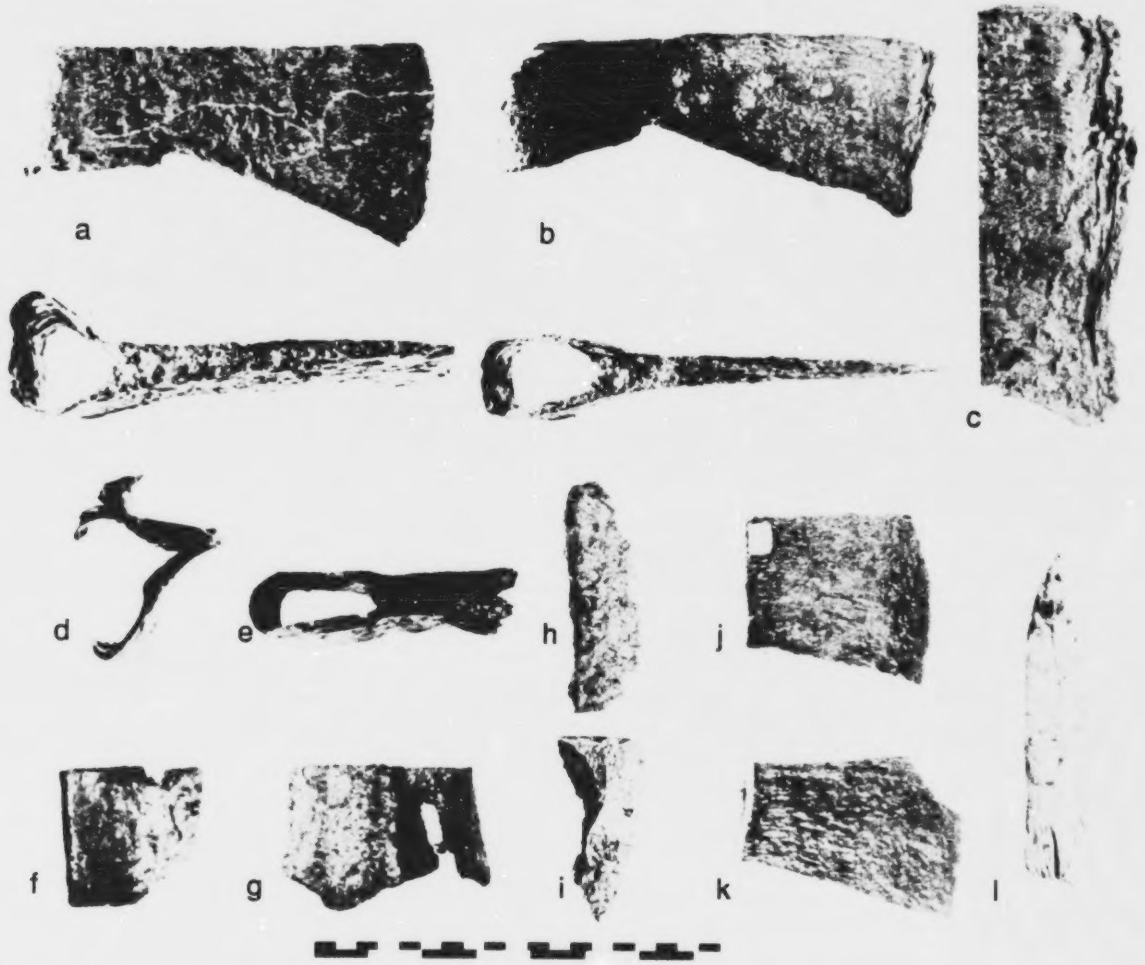

Figure 5.8 Ax forms and construction details: *a–b*, complete "French trade" ax heads, top and side views; c, detail of the steel bit of specimen *b*, which shows flow lines running at right angles to the blade; *d–g*, ax eyes and eye fragments (note the split leaves on *e*, showing one common construction technique, and the "ear" on *g*, which is characteristic of one type of Anglo-American ax); *h*, steel ax bit trimmed from the blade on the hardy in preparation for a replacement; *i*, steel ax bit broken in brittle fracture, the break following, in part, a lap weld repair which attached the bit to the blade; *j–k*, blade sections cut from axes on the anvil's hardy; *l*, detail of the lower margin of specimen *j*, showing a steel insert sandwiched between the wrought iron leaves of the blade.

established techniques which continued to be used for at least a century and a half; ax repairs at Pentagoet are remarkably similar to those employed at an English smithy at Fort Saint Joseph in Ontario, in operation from 1796 to c. 1815.[26]

Details of the process by which the axes were broken and repaired are clearly reflected in the smithy waste. At least six ax bits have been deliberately clipped from their blades at the anvil hardy to prepare the blade for a new steel bit. Usually the old bits were removed because the insert had been sharpened back to the point at which very little steel was exposed (Figure 5.8*h*). The replacement bit was lap-welded to the side of the blade, rather than sandwiched between its leaves as could be done in original manufacture.[27] The ax repair assemblage also includes three ax bits which were apparently damaged in use (Figure 5.8*i–k*). As at Fort Saint Joseph, these specimens show no plastic deformation, and so broke in brittle fracture, probably when the axes were being used. In one case (Figure 5.8*i*), the fracture initiated along the lap weld from an earlier repair.[28] Further evidence of ax repair can be counted in the remains of five socket fragments (Figure 5.8*d–g*), four of which had been sprung

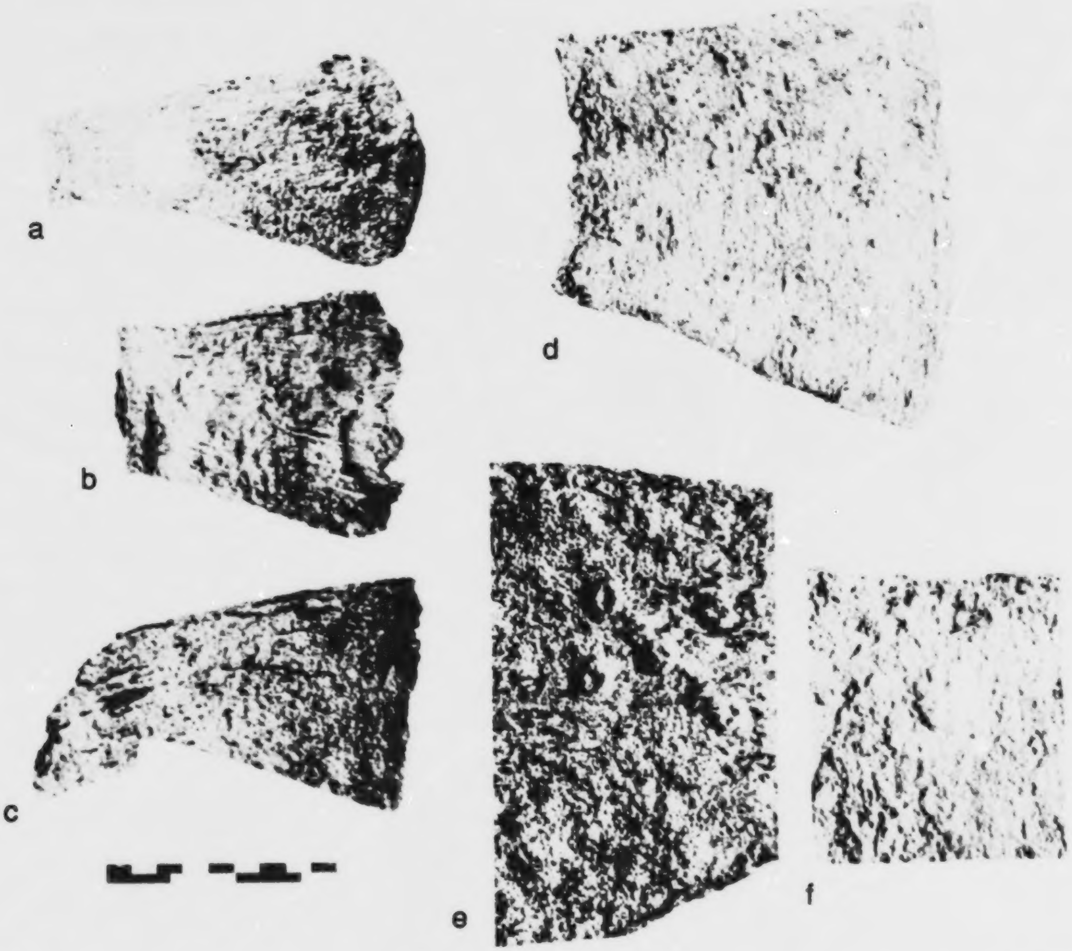

Figure 5.9 Ax blade forms and touch marks: *a–c*, felling ax blades; *d*, blade of a broad ax or possibly a halberd; *e*, cluster of plain punch marks from opposite face of specimen *c*; *f*, cruciform punch mark, detail of *b*.

about the eye. Evidently the butt end of the "French trade" ax was used for pounding, even through it lacked the necessary reinforcement, or "poll," found on more advanced designs. Like the ax bits, most of these specimens had been cut off at the hardy to salvage the usable remainder of the ax.

Variations in ax construction and blade form suggest that few of the Pentagoet specimens came from a uniform stock imported principally for trade with the Indians. In all, cutting edges from 16 axes, two whole and 14 fragmentary, have been identified, varying markedly in the size and convexity of the cutting edge (Figure 5.9*a–d*). Of these, at least nine had steel bits. This contrasts with Fort La Tour, at which 16 nearly identical, whole axes were found, and none of them were fitted with steel inserts.[29] The steel-edged specimens represented at Pentagoet may have been maintained for the fort's workmen and used for felling trees for lumber and firewood or, in the case of the single broad ax, for squaring structural timbers. The cheaper axes found at Fort La Tour, on the other hand, may have been part of the trading stock.[30]

This is not to say, however, that ax repair was conducted solely for the benefit of the French themselves rather than for the Indians. At least one broken blade and two trimmed ax bits which appear to be entirely of wrought iron were recovered in the smithy refuse. Thus the Indians may have called upon the armorer not only to repair their trade axes, but to upgrade their inferior ax bits to steel.[31]

Ax makers commonly stamped their products with steel punches, usually round, and bearing simple geometric designs. Although few of the impressions were clear, all of the 16 complete wrought iron axes recorded at Fort la Tour were so identified, as might be expected of trading stock.[32] Most of Pentagoet specimens exhibit such stampings as well; of the six complete ax blades at Pentagoet, four bear recognizable, but different, touch marks, and two are unmarked. For each example, seemingly identical touch marks have been noted at contemporary European and aboriginal sites.[33] Appearing on three ax blades and on a huge meat cleaver are variants of the asterisk or cross, each of which is set in a round cartouche (Figure 5.9*f*). These stamps sometimes occur in multiples, and their arrangement may be part of the identification; one ax at Pentagoet merely bears a cluster of plain punch marks (Figure 5.9*e*).

The presence of touch marks has generally been taken as an indication of European manufacture.[34] For example, the cross and circle motif has been variously identified as "Belgian" or representing exports from Utrecht, although these identifications remain unsubstantiated.[35] Whatever the origin, it is unlikely that these several markings would have been used at Pentagoet. No evidence has been given for ax manufacture either at Sainte-Marie I or at Fort La Tour, and although Pentagoet's armorer had both the skill and equipment required to remanufacture these tools from salvaged parts, it is unlikely that he produced them from stock on a regular basis.

The variation in axes and their markings suggests that the specimens at Pentagoet do not represent either a single episode or even a single source of supply. Rather they seem to indicate tools of slightly different design, acquired and used over a long period of occupation. Some of the ax fragments may represent the personal property of Pentagoet's employees, in which case the formal variation may reflect the diversity of smithing within a relatively small area of southwestern France from which d'Aulnay recruited many of his workers. In other cases, perhaps less often, the scrap may come from trade axes procured from various sources and brought to the fort to be repaired.

Gunsmithing

It is generally agreed that armorers in French North America never actually made complete firearms from scratch, but rather maintained and repaired weapons which were manufactured in France or the Netherlands.[36] Nevertheless, as in Europe, gunsmithing had not yet achieved the great degree of specialization which it was to acquire at the end of the 17th century. At Pentagoet the scope of the armorer's duties in maintaining firearms was broad, and his services were indispensable both to the fort and to the Indians it supplied with arms. One authority, T. M. Hamilton, notes that an Indian with "a screwdriver, a mainspring vise, a file, and an assortment of lock parts," could save a trip to the post's gunsmith and effect minor repairs himself. While this is undoubtedly true, there is little evidence that this was common practice, and is unlikely to have obtained in early Acadia. Indeed, as Hamilton observes, "the need for qualified gunsmiths... [was] self-evident, for the self-taught amateur could not retemper springs, nor fit a new breechplug to a burnt out breech."[37]

The need for this service was recognized by the brash, young Edward Ashley, who ran the Penobscot post for the Plymouth colony. Ashley was repeatedly called upon to repair and replace gunlocks for the Indians, but was ill equipped to do so, and consequently "loaned" them weapons.[38] While Ashley's actions brought him to trial before the Privy Council in England and earned him a stiff prison sentence, the French appear to have been decidedly more open-minded about the requirements of the fur trade. In the 18th century it actually became French policy to repair gunlocks gratis for the Indians in order to maintain their allegiance.[39]

According to contemporary inventories, the tools of an armorer in New France were simple and few in number. Besides the forge and bellows, an armorer might be equipped with an anvil and its smaller cousin, the beak iron or "bickern," a pair of sledge hammers, a hand hammer or two, a few pairs of tongs, a chisel, a pair of punches, an assortment of files, a mandrel or a scrolling fork, and perhaps a die plate and one or two sizes of taps to refit breechplugs in burned out musket barrels.[40] Several of these tools survive at Pentagoet, along with some others not mentioned in the inventories. These are generally exhausted or expendable items which have escaped scavenging—a possible screwdriver handle, a broken worm, and a Y-shaped combination reamer (Figure 5.5.10*a–c*) a gimlet, a punch, a handle from a pair of tongs, broken and worn hammers (Figure 5.10*d–h*), and several worn-out files (Figure 5.10*i–p*). The files represented include the types essential for gunsmithing: flat, half-round, round rat-tail, and tapered knife-edge.[41] These are all either rough or bastard files, and with the exception of the rasp and the inletting tool (Figure 5.10*o–p*), all are double cut—attributes associated with rapid cutting rather than fine finishing. But in the hands of a practiced armorer these simple tools were evidently adequate to accomplish some rather sophisticated repair work. Gunsmithing must have been equally important at Fort La Tour, where similar implements, especially files and reamers, were unearthed.[42]

One delicate tool which survives intact, a lightweight, double-headed peening hammer shown in Figures 5.10*g* and 5.11, reveals the pride and skill of the craftsman who made and used it. Its specific function is unknown; it probably served in gunsmithing, but could be a flintknapping hammer instead. Its two heads, although considerably worn, have blunt and pointed forms, perhaps for course and fine work.

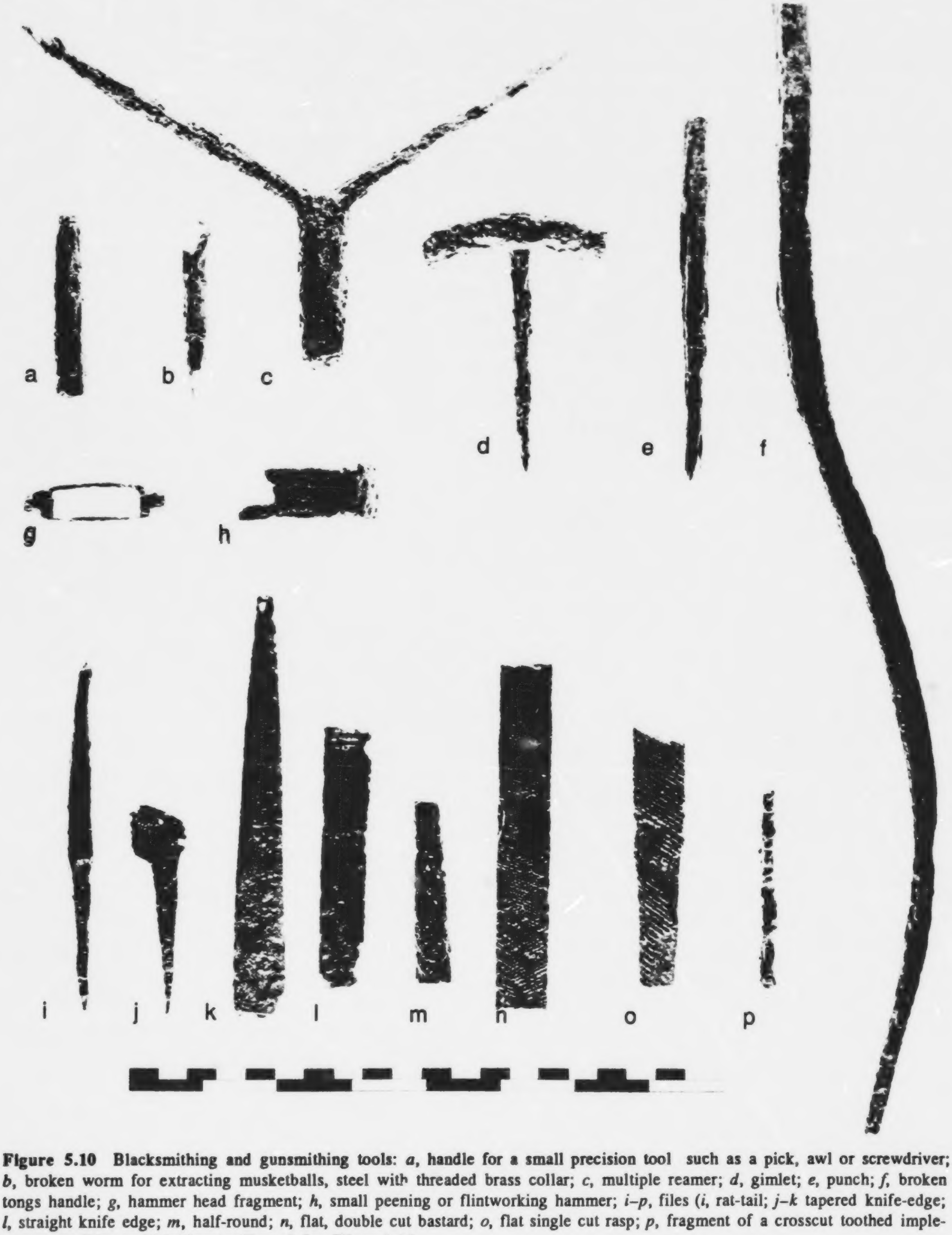

Figure 5.10 Blacksmithing and gunsmithing tools: *a*, handle for a small precision tool such as a pick, awl or screwdriver; *b*, broken worm for extracting musketballs, steel with threaded brass collar; *c*, multiple reamer; *d*, gimlet; *e*, punch; *f*, broken tongs handle; *g*, hammer head fragment; *h*, small peening or flintworking hammer; *i–p*, files (*i*, rat-tail; *j–k* tapered knife-edge; *l*, straight knife edge; *m*, half-round; *n*, flat, double cut bastard; *o*, flat single cut rasp; *p*, fragment of a crosscut toothed implement, possibly an "inletting tool" used for filing slots).

Most interesting, however, are the surviving traces of the ornamental scrollwork deeply chased into the metal at the base of each hammer head. This was a tool crafted with special care, perhaps to last a lifetime, and may well be a product of the armorer's apprenticeship.

If felling axes at Pentagoet reflect diverse origins, the firearms are even more varied. The gunsmith was faced with maintaining locks which were not only hand crafted, requiring pieces to be fitted individually, but which operated on fundamentally different mechanical principles. Although no matchlocks have been identified, representative parts indicate that three sparking mechanisms were in use during Pentagoet I: the wheellock, the snaphance, and flintlock (Figures 5.12 and 5.13). Many of these weapons were apparently the personal possessions of d'Aulnay's employees, rather than general issue from a common source of military stores or trading stock. Frenchmen of all classes owned firearms in the 17th century, and they appear regularly in the probate inventories of peasants who owned very little else.[43]

Because long barrels tend to be cut and recycled for other

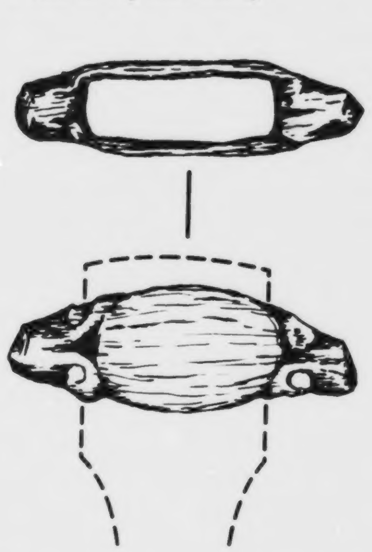

Figure 5.11 Detail of the small double-headed hammer (Figure 5.10 *h*) showing delicate scrollwork engraved about each head. (actual size)

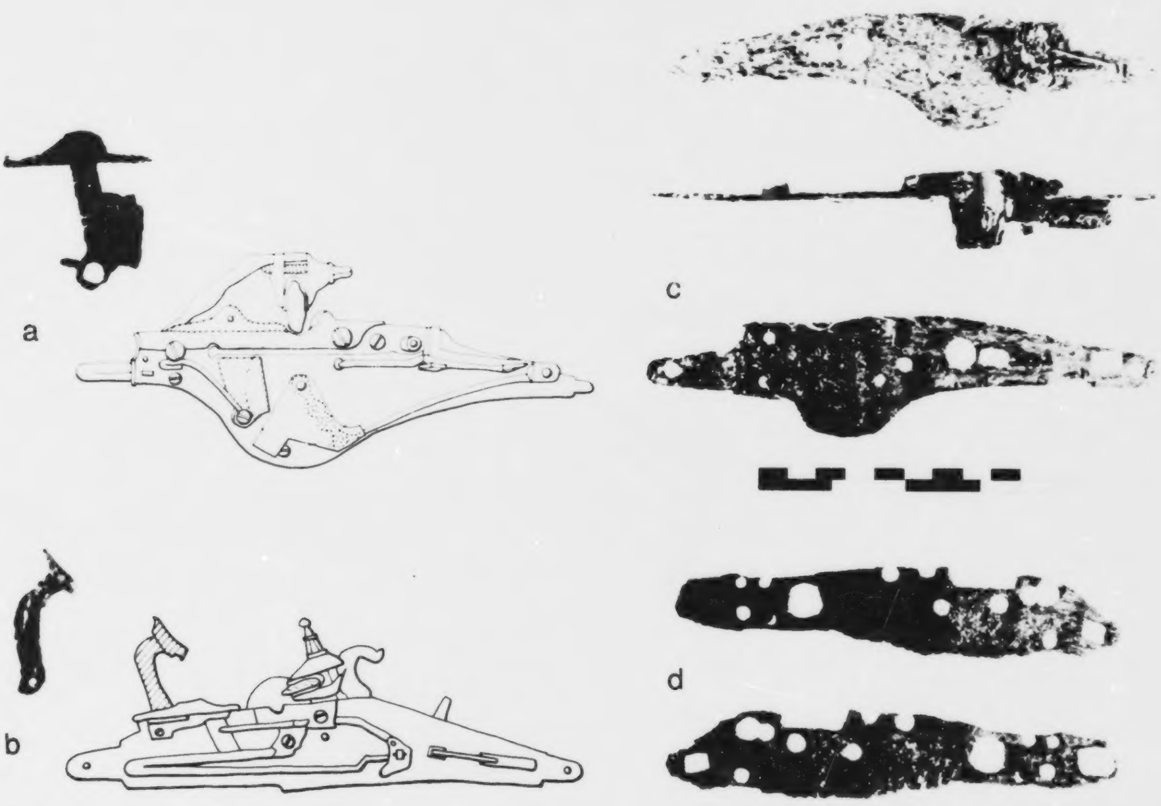

Figure 5.12 Representative gunlock types at Pentagoet: *a*, wheellock priming pan cover; *b*, snaphance battery; *c*, Dutch bellied snaphance lockplate with hole for horizontally acting sear, exterior, top, and interior views; *d*, rare variant "trapezoidal" form of Dutch style flintlock, exterior and interior views. (line drawings after M.L. Brown)

purposes and because of the overlap in lock sizes between pistols and muskets in this period, it is difficult to classify the small arms represented in the assemblage. Several items, perhaps the majority of the gunsmithing scrap, appear to have come from pistols which had seen extremely heavy use. It is apparent, therefore, that pistols did not function merely as items of dress or for posturing, but were fired regularly. Whether their principal duty was in personal defense, or some other purpose such as signaling or entertainment, is not clear.[44]

These firearms apparently malfunctioned on a regular basis, and required constant repair. Exploded pistol barrels, ruined beyond any practical re-use, indicate that damaged weapons were brought to the workshop to be cannibalized, probably for the lock parts. Twelve gunsprings and gunspring fragments, three triggers, two trigger guard parts, a flintlock battery, a snaphance steel-arm and two pans also testify to this practice (Figures 14 and 15).

The bellied lockplate from an early Dutch snaphance pistol, shown in Figure 5.12*c*, is of a shape which evolved from earlier French wheellocks.[45] Yet the reason for stripping and disposing of this lockplate may have been that it too was obsolete. The rectangular hole in the plate indicates a horizontally acting sear, the catch which is actuated by the trigger and releases the cock when the gun is fired. This is a feature characteristic of the snaphance. As the sear engages the cock directly through the side of the lockplate, this design subjects the sear to excessive wear and is inherently dangerous, making the gun prone to fire while it is being loaded.[46] With the evolution of the true flintlock, the horizontal sear remained popular only in 17th-century English lock mechanisms, its reliability eventually being improved by the addition of a safety catch or "dog" to engage the cock.[47] A second lockplate, a rare variant of a Dutch "trapezoidal" form,[48] was apparently a true flintlock fitted with the safer and more advanced vertical sear (Figure 5.12*d*).

The vertical sear was more popular at Pentagoet, as is clear from the recovery of three specimens in various stages of manufacture (Figure 5.15*f–h*). This shows, moreover, that key wearing parts were not merely replaced with scavenged and re-fitted pieces, but were actually manufactured from scratch at the site. Yet the true forging skill of the Pentagoet armorer can be shown in the manufacture from bar stock of a much more complex part, the gun cock in Figure 5.15*i*, shown here for clarity with a finished but unrelated upper jaw. Note that the hole for the jaw screw and the tumbler axle have yet to be bored, and the surfaces have not been filed to their final shape.[49]

Further evidence of the armorer's competence is reflected in the careful lap weld of a wheellock pan cover of advanced design (Figure 5.15*e*). The wheellock was an effective firing mechanism, but was difficult and expensive to maintain, and until about 1560 its manufacture was restricted to Flemish, German, and Italian makers of clocks and scientific instruments.[50] The Dutch military perpetuated the wheellock until c. 1675, and it is likely that this specimen is of Dutch manufacture.[51]

Although certain critical repairs at Pentagoet were effected by the superior, but more difficult practice of forge

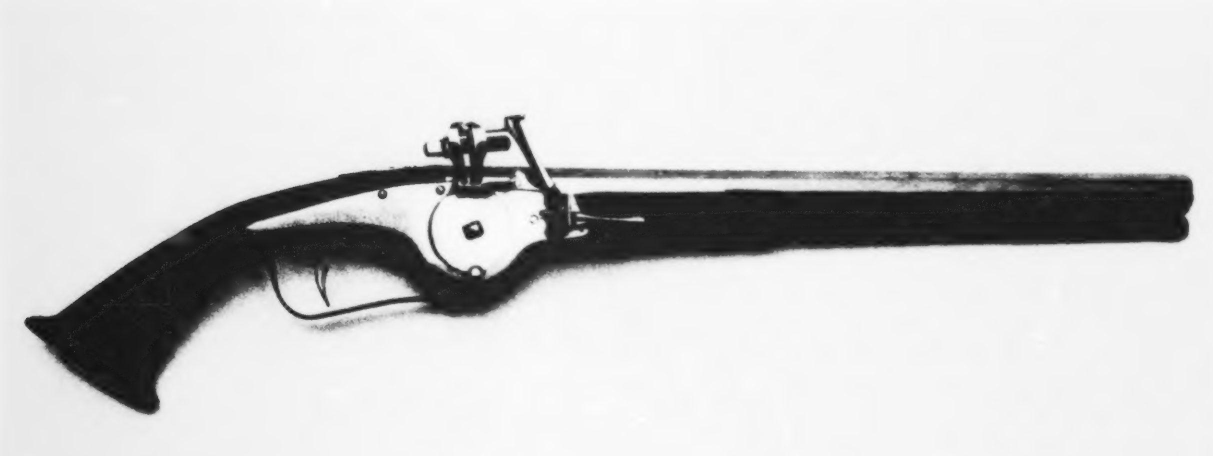

Figure 5.13 Pistol, probably of Dutch manufacture, which uses a wheellock mechanism very similar to one represented by a part found at Pentagoet (Figure 5.12*a*). Note that the shape of the lockplate of the snaphance in Figure 12*c* exhibits a similar bulge, which was originally derived from the wheellock design. (courtesy of the New Brunswick Museum)

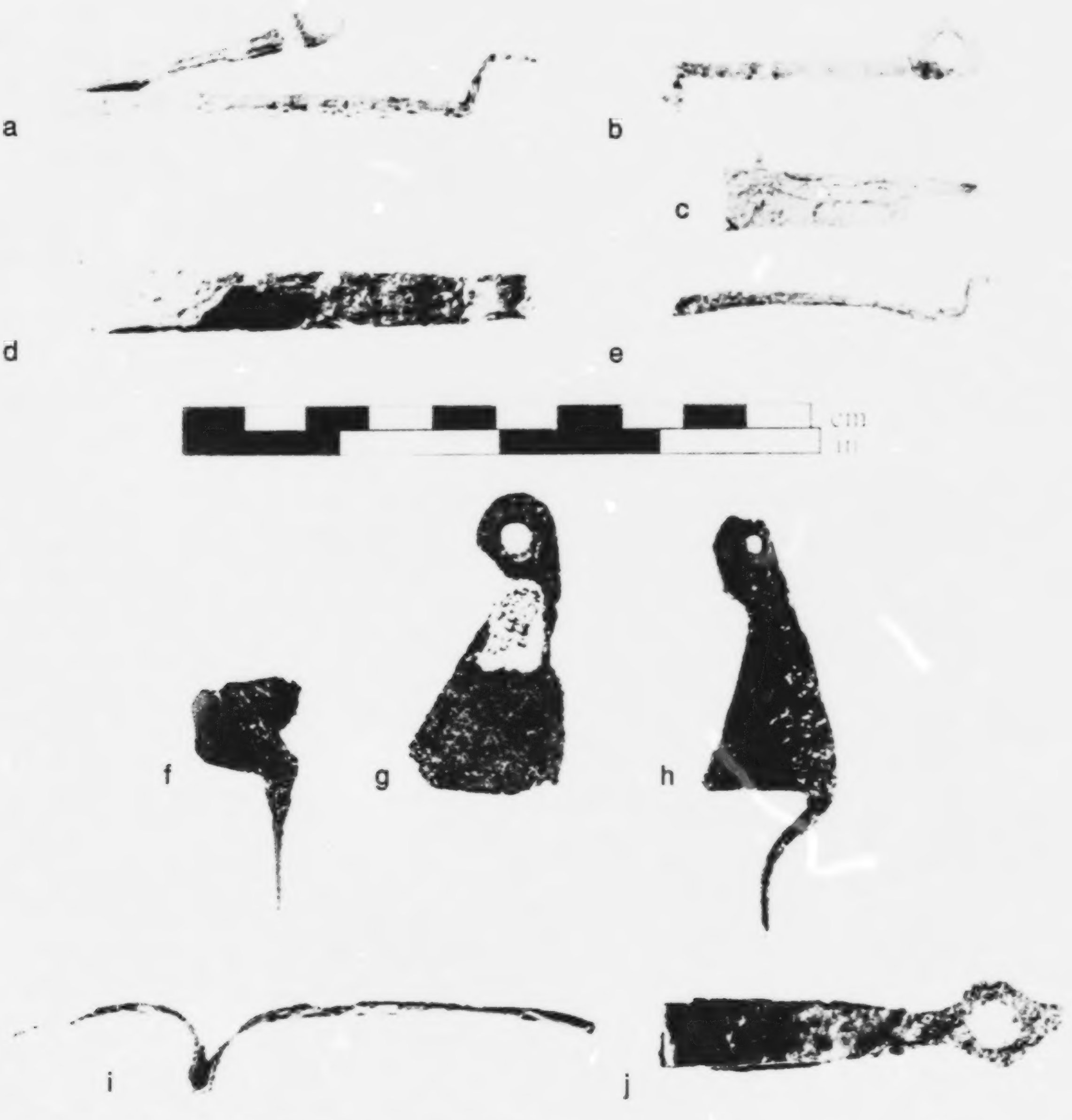

Figure 5.14 Gunlock springs and trigger parts: *a–e*, whole and fragmentary mainsprings; *f–g*, trigger fragments; *h*, complete trigger; *i*, trigger guard fragment (iron); *j*, possible trigger guard fragment. All parts are either steel or iron.

welding, brass welding was practiced as well. Brazing, in certain circumstances, can be considered a make-do technique of effecting a repair. It generally requires less skill, and the result is less durable, as the remains of re-broken gun cocks and pans from 18th-century Fort Michilimackinac clearly show.[52] But the lower heat necessary for brazing is less likely to cause distortion of the pieces being joined, and for this reason the technique is extremely valuable, particularly for working on finished gun barrels.

At Pentagoet brass welding was apparently reserved for

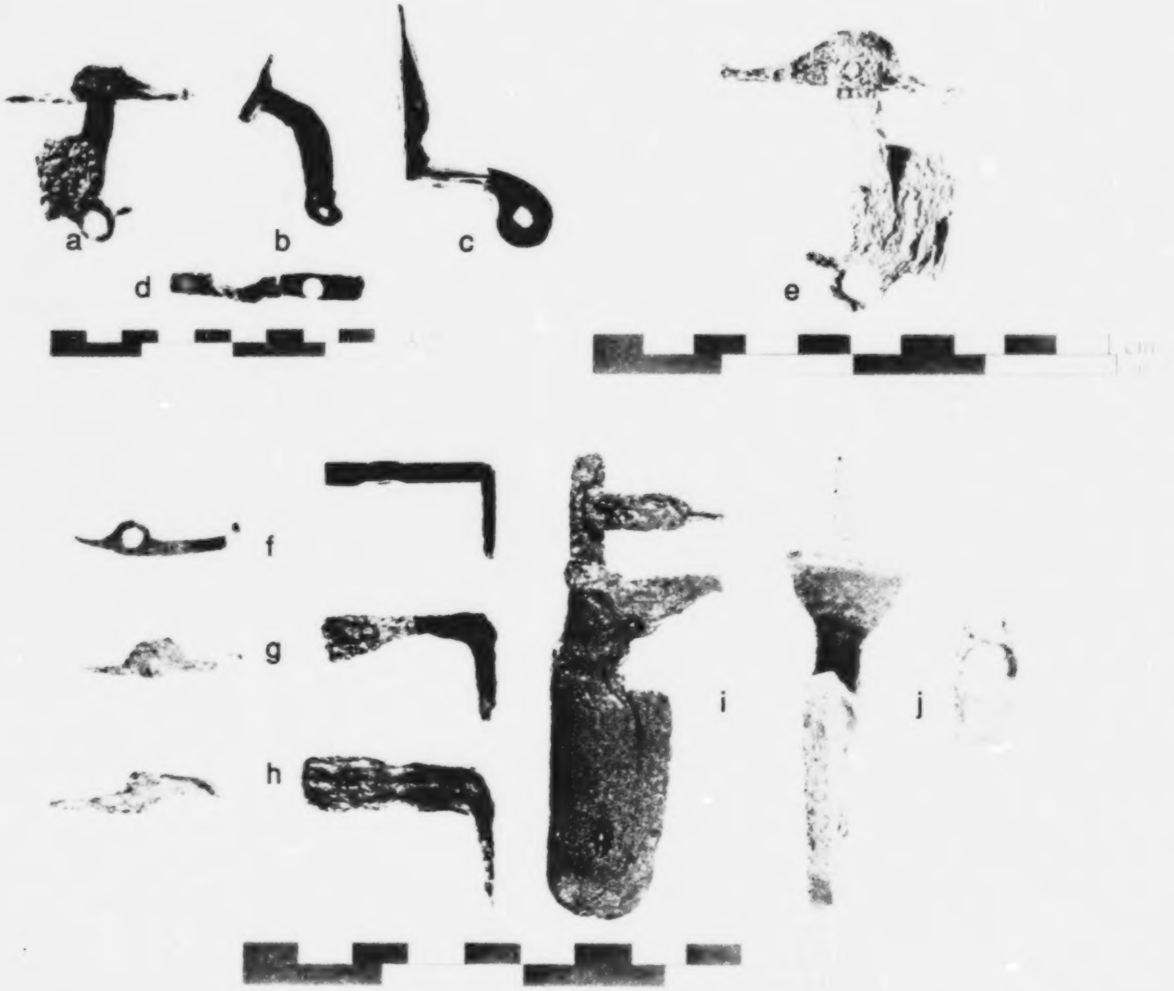

Figure 5.15 Scavenged and fabricated gunlock replacement parts: *a*, sliding pan cover mechanism from a Dutch style wheel-lock; *b*, snaphance steel-arm; *c*, flintlock battery; *d*, priming pan, repaired by brazing; *e*, detail of lap weld repair of *a*, exterior view; *f–h*, vertical action sears, interior and top views (*f*, finished, *g–h* unfinished); *i*, unfinished gun cock, exterior and front view; *j*, upper jaw of gun cock (found separately from *i*).

those pieces which involved no moving parts and for situations where there was enough surface area in contact for the weld to be effective. A common application was the repair of breechplugs. The assemblage contains four examples: two of threadless design, which were heat shrunk or brazed in place (Figure 5.16*d–e*), and two of the removable, screw variety (Figure 5.16*f*). In the screw type, the barrel was usually re-threaded, and a new plug made to fit it; a brass implement, which appears to have been a primitive thread gauge, was probably used as an aid in cutting the threads for new breechplugs (Figure 5.16*g*). Nevertheless, in at least one case a threaded breechplug was permanently brazed in place in a pistol barrel as if to seal a leak.

Such relatively minor breechplug repairs are to be expected on the frontier, but the heavy use to which Pentagoet's firearms were subjected often required far more drastic steps. Most extraordinary was the repair of cracked gun barrels, evident in three specimens in the Pentagoet collection (Figure 5.16*a–b*). These pieces had well developed

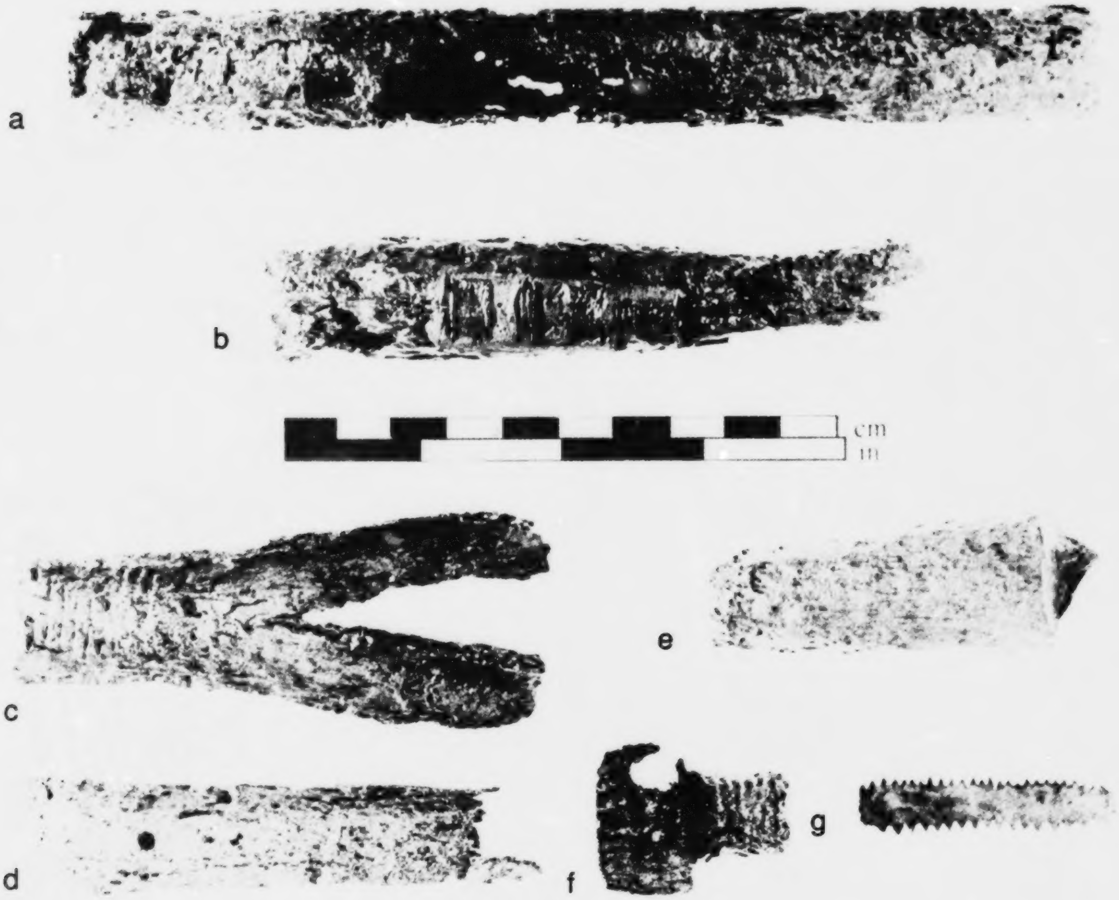

Figure 5.16 Barrel and breech repairs: *a–b*, pistol barrels repaired by brazing iron slugs across nascent cracks; *c*, exploded octagonal pistol barrel with threaded breech; *d*, octagonal pistol barrel with breechplug; *e*, threadless breechplug, missing tang; *f*, screw type breechplug, its threads apparently stripped; *g*, sheet brass tool, probably a thread gauge used to refit breechplugs.

fractures, running for several inches along the length of the barrel. The mend was effected by filing deep grooves across the nascent crack and setting in slugs of iron running across it, apparently using leaves of brass from scrapped kettles for the welding material. To finish the job, the gunsmith filed down these transverse slugs to the original contours of the barrel.[53] In Figure 5.16*b*, the staggered mending slugs spiral slightly about the barrel following an obvious open crack. These extreme measures testify to the extensive use which the firearms saw at Pentagoet, and the difficulty in supplying new replacements for them. But perhaps more impressive than the armorer's ingenuity and skill in effecting such desperate repairs is the faith and bravery of the soldiers and Indians who subsequently used these decrepit guns.

Flintworking

Mechanically varied though their firing mechanisms may have been, all of the firearms seem to have had sparking locks, and so required supplies of gunflints. Some 74 finished gunflints have been identified at Pentagoet from both Pentagoet I and Pentagoet III. These are comprised of the two most common gunflint types found in colonial sites: spall (Figure 5.17*n–r*) and blade (Figure 5.17*s–cc*). The two types represent quite different technologies of production, and, as shall become apparent, reflect two different methods of supply as well.[54]

Gunspalls are short flakes which may be struck either from a concave or a convex surface of a flint core. They are bulbous near the point of impact and taper to a feather edge at the termination, a section sometimes described as "wedge-

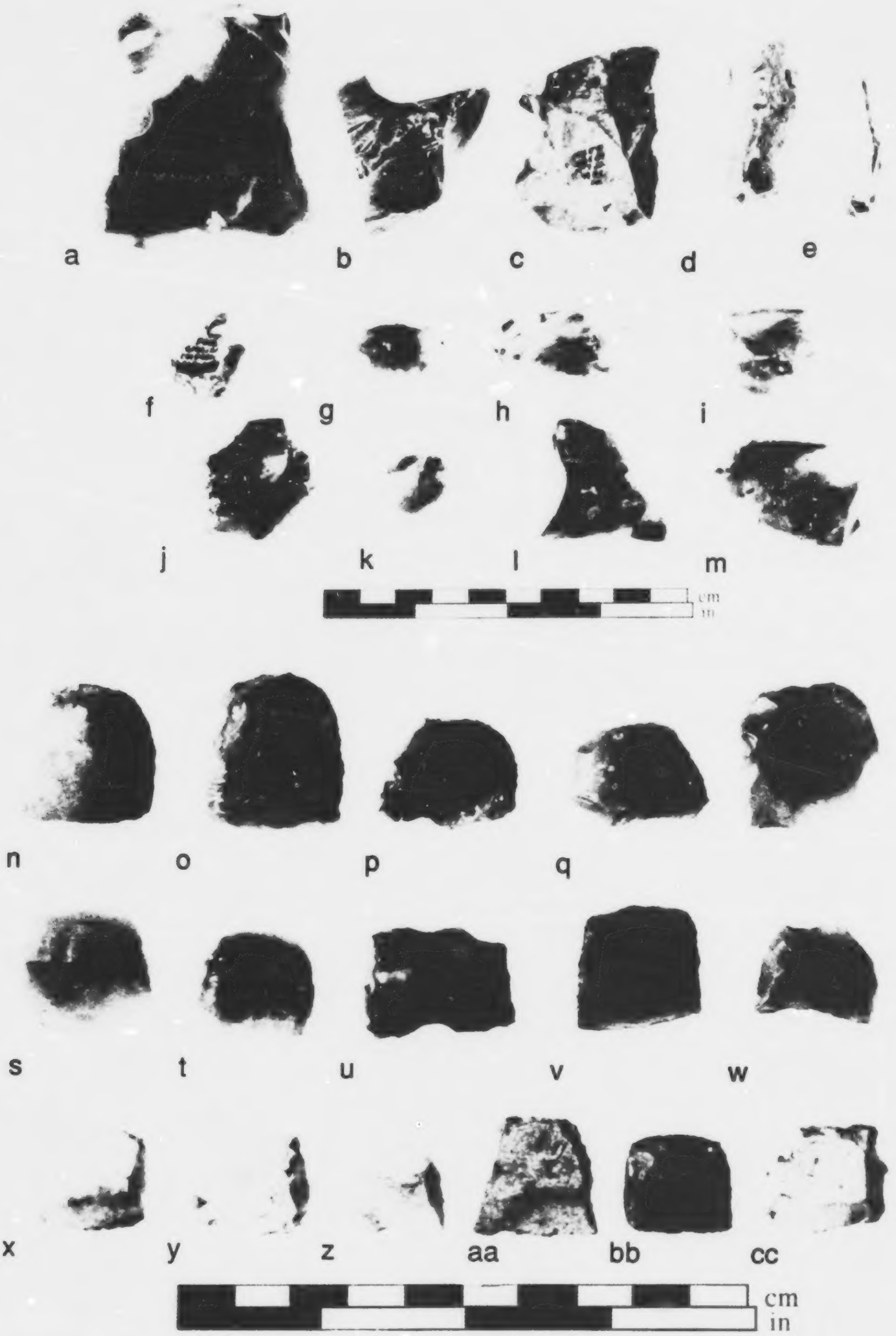
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Figure 5.17 Flintworking debris and finished gunflints: *a–e*, cores and core fragments, gray flint with white inclusions; *f–m*, waste flakes gray flint; *n–r*, spall type gunflints, gray flint; *s–w*, blade type gunflints, blond flint; *x–cc*, blade type gunflints, calcined by fire.

shaped." The flake is usually trimmed about the sides and near the bulb forming a rounded "heel," while the termination, ideally, is left thin and square. The thick bulbous heel fits in the back of the jaws of the guncock, while the sharp terminal end of the flake faces the steel battery which it strikes in firing.

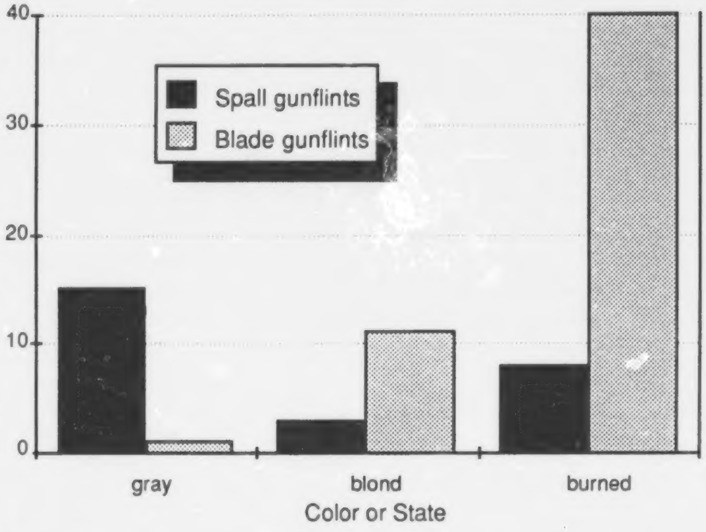

Figure 5.18 Distribution of Pentagoet gunflints by color and type.

The technology for making blades is a superior one as it produces an especially uniform product with less waste of flint. Blades are long, prismatic flakes struck from a polyhedral core, each following the ridges left behind by the removal of previous blades. Generally they have one facet on their ventral side, where they they were separated from the core, and two or three on their dorsal side, which represent previous blade scars. The bulb and termination are often discarded, while the uniform central portion of the blade is snapped into two to five or more short sections. With some minor trimming, each segment becomes a finished gunflint, triangular or trapezoidal in section. In blade gunflints, it is the edge of the original blade, rather than its termination, which is used to produce sparks against the battery. Thus while a gunspall is mounted in a gunlock so as to travel in a path parallel to the original axis of fracture, the blade type gunflint is mounted transversely, at right angles to the motion of the cock.[55]

It is unusual to find evidence for gunflint manufacture in a North American outpost; gunflints are generally thought to have been produced in Europe, and the finished product supplied to the colonies. Nevertheless it is apparent that during Pentagoet I, only the raw material was imported, and this flint was used to make the simpler of the two major gunflint types, the gunspall, right at the site. Like the other maintenance and fabrication debris, the flintworking debitage was concentrated within and about the Smithy, with a lesser cluster in the cellar of the Dwelling.

The flintworker's raw material, represented by a sample of 298 fragments, is primarily a nodular gray to grayish brown flint with white inclusions and is certainly of western European origin.[56] The details of the manufacturing process or "reduction sequence" by which the nodules of flint were transformed into gunflints is not obvious; like the rest of Pentagoet's workshop refuse, the raw material has been reduced to unusable scrap, and little remains in the refuse except exhausted cores (Figure 5.17*a–e*) and waste flakes (Figure 5.17*f–m*). The form in which the raw material was supplied is evident in the "decortication" flakes, the first flakes trimmed from the original workpiece to remove the rind from the nodule, and prepare the angular surfaces or striking platforms from which the gunspalls were struck.[57] Some 84 pieces, or nearly 29% of the debitage, show some vestige of this soft cortex, and judging from the curvature of these flakes, the flint supplied to the site came in the form of small, rounded, water-worn nodules of fist-size, or perhaps slightly greater.

Except for five or six spalls which might be considered gunflint "preforms"—flakes which required relatively minor trimming in order to produce finished gunflints—there are no usable waste products within this debris. No clear-cut examples of reject gunspalls are apparent, although it is possible that some of these have been confused with the few worn out flints represented in the assemblage. Nevertheless, it is obvious from the form and orientation of the flake scars on the surfaces of the cores that this was a spall rather than a blade technology.

Of the 77 diagnostic gunflints from the site, 26, or 34%, were gunspalls, while 51, or 66%, were blade gunflints. Most of the gunspalls were indeed of the same gray material as the Pentagoet I debitage, and it is believed that they were made on the site during that period.[58] By contrast, the majority of the blade gunflints were made of a different, blond flint, and it is thought that they were imported to the site ready-made during Pentagoet III. These distinctions can be justified not only by stratigraphy, but also by fire damage. Of the 26 gunspalls, only 8, or 31%, were burned, as compared to 40, or fully 78%, of the 51 blade specimens (Figure 5.18). Evidently most of the blade type gunflints were exposed on or above the floors during the fire which destroyed the fort in 1674, for they show the distinctive potlid fractures and white color of flint which has been calcined (Figure 5.17*x–cc*). In fact, most of the specimens which retained their original blond color had apparently fallen between floorboards and escaped burning (Figure 5.17*s–w*). Similarly, most of the earlier gunspalls were buried in refuse, where they were protected from the direct heat of the conflagration (Figure 5.17*n–r*).

These observations contradict much conventional wisdom on gunflint origins and dating.[59] D'Aulnay's armorer at Pentagoet specialized from the beginning in flint sparking mechanisms rather than matchlocks or pyrites sparking wheellocks, and outfitted them with expertly made gunspalls produced at the site. Under the circumstances, it makes no sense to classify Pentagoet's gunspalls as "Dutch," as has Witthoft and many successors, even though they fit the morphological criteria perfectly.[60] Furthermore these local products are quite regular in form, and do not exhibit the lack of standardization suggested by Blanchette for early gunspalls.[61] Later, under the military governorship of Grandfontaine and de Chambly in Pentagoet III, the fort relied on flints supplied in quantity from the outside, and these were overwhelmingly of the blade type. Thus such blade products, though by no means universal, were certainly in circulation by the third quarter of the 17th century, and their discovery in sites of that date should not automatically be considered anomalous, or intrusive as has often been suggested.[62] Nevertheless, this sequence of replacement of gunspalls by blade type gunflints occurs far earlier at Pentagoet than has been recorded elsewhere. At Fort Michilimackinac, under French occupation from 1715 to 1760, only 13.7% of the the 2523 gunflints were blade

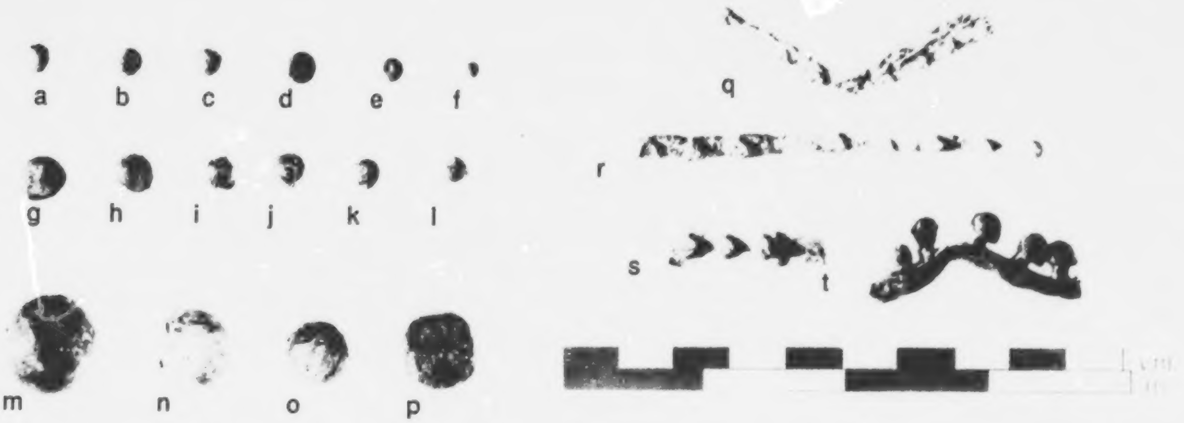

Figure 5.19 Lead shot and sprue: *a–f*, Rupert shot with characteristic "dimples"; *g–l*, cast shot, showing mold seams and sprue nibs; *m–p* cast musketballs (note teeth marks on *p*); *q–s*, sprue from small cast shot; *t*, shot still attached to sprue.

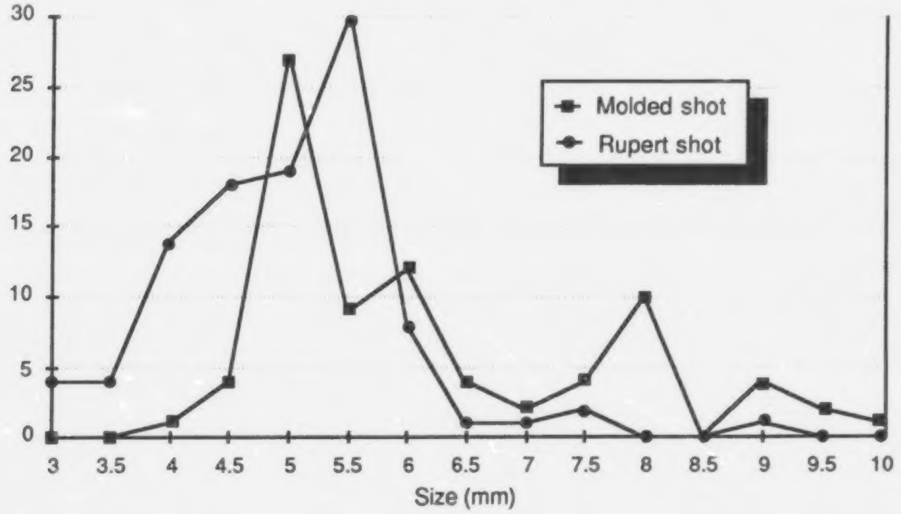

Figure 5.20 Size distribution of Rupert and cast lead shot.

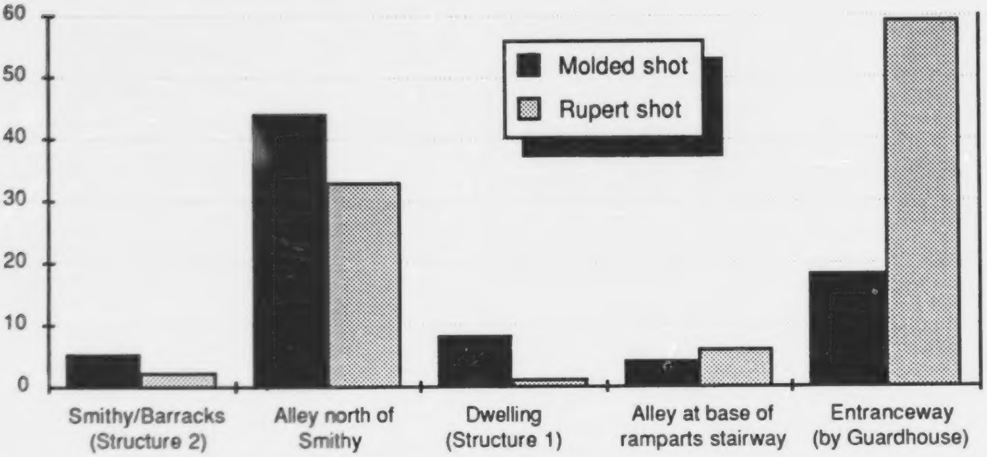

Figure 5.21 Spatial distribution of Rupert and cast lead shot.

type gunflints, while the rest were gunspalls.[63] Similarly, while the superior blade type gunflints were available during the final occupation of Pentagoet, they do not commonly appear on other sites, French or English, for several decades.

Lead Ball and Shot Production

A final activity related to firearms was the production of shot and musketballs. From the accumulation of sprue in the workshop refuse, it is apparent that the majority of early shot was laboriously cast in gang molds (Figure 5.19*g–l*). Rupert shot was also present, though in lesser quantities (Figure 5.19*a–f*). This latter form was made by dropping lead through a heated colander into a pan of water immediately below. The shot was then graded by sieving.[64] The two types usually can be distinguished by the seam and cut-off marks on the cast shot, and the characteristic dimple on the surface of each piece made by the Rupert process.[65] Whether the Rupert shot was made on the site has not been determined, but the size distributions of the two are roughly similar, and indicate that they were functionally interchangeable (Figure 5.20). Apparently at least three or four sizes of shot were used at the fort, but the smallest size, at 5 mm was the most popular, probably for fowling pieces. Molded shot is most common in the area within and around the Smithy, but the reverse is true in all other areas; Rupert shot predominates overwhelmingly on the paving of the entranceway just outside the Guard House (Figure 5.21).[66] This suggests either that Rupert shot was not made at the workshop, or it replaced cast shot in Pentagoet III.

The sizes of musketballs and gun barrels give some idea of the range of small arms in use at the fort. With a few exceptions, the sample of 42 musketballs is predominantly from Pentagoet I middens sheltered from the fire of 1674, and all evidently were cast singly in plier-type molds (Figure 5.19*m–p*). As shown in Figure 5.22, these musketballs are somewhat larger than those from 18th-century Fort Michilimackinac.[67] Of the ten gun barrels which have been recovered, eight have measurable bores, although the measurements are only approximate. The largest of these is a sole, badly rusted musket barrel, measuring 18 mm. Allowing for "windage" or clearance for the ball, this probably corresponds to 12 "calibre" in the French system.

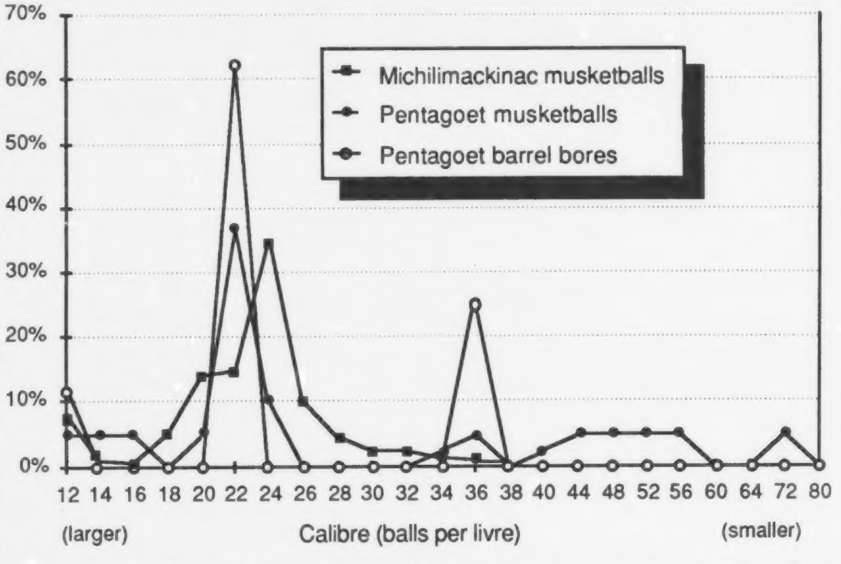

Figure 5.22 Size distribution of musketballs and barrel bore diameters at Fort Pentagoet and Fort Michilimackinac. Comparison is made using the French calibre, which is based on the number of balls per *livre*.

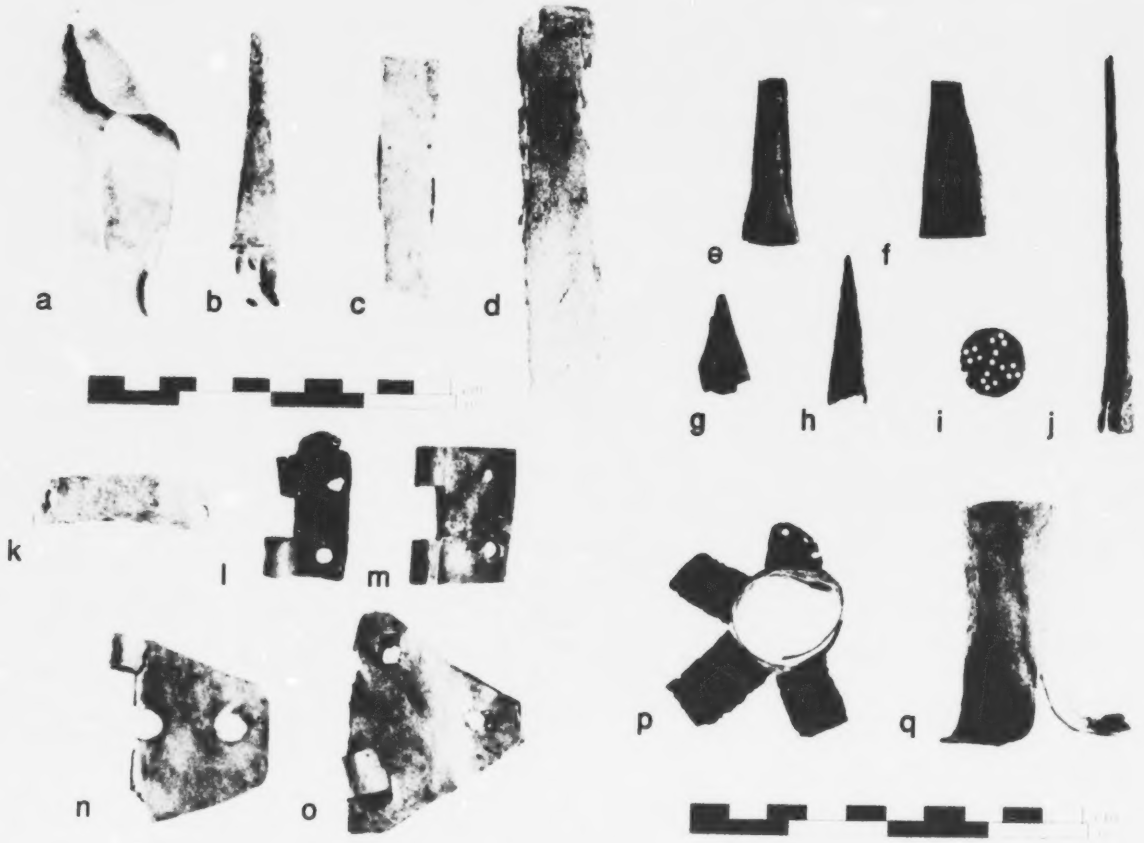

Figure 5.23 Recycled sheet copper and brass: *a–b*, copper scrap cut with shears; *c–d*, sheet brass cut with a chisel; *e–g*, conical copper items, probably lace tips and tinkling cones; *h*, brass tinkling cone; *i*, perforated sheet brass disc; *j*, rolled sheet brass ornament; *k–o*, sheet copper hinge fragments; *p–q*, sheet copper candle holders with fragmentary iron mounting nails.

The remaining barrels were all from pistols, as the longer musket barrels were apparently recycled by the smithy for other purposes. Four measured 16 mm, or probably 20 or 22 calibre originally, while two others measured 13.5 mm, or 34 to 36 calibre. Thus, in spite of the small sample, the distribution of barrel bore diameters corresponds remarkably well to that of ammunition sizes, with the exception of the smallest balls in the range from 40 to 80 calibre (Figure 5.22). In retrospect, these were probably large shot, rather than slugs. Pentagoet's firearms, then, were probably of significantly larger bore than those from Fort Michilimackinac, and exceed the 24 to 32 calibre range which has been suggested as the norm for later 18th-century trade guns in general.[68]

Recycling Sheet Copper and Brass

The reuse of kettles by Indians for sheet copper and brass has been noted frequently, and it has even been suggested such kettles were used "primarily as a source of sheet brass and copper."[69] That this was not strictly an Indian tradition is apparent from the Pentagoet workshop refuse (Figure 5.23). Here, as at other 17th-, 18th-, and 19th-century sites, French and English, copper alloy kettles were commonly cut up with shears or chiseled and filed to make a wide variety of other items—some ornamental, but most utilitarian.[70]

Ornamental items include six or seven brass tinkling cones, lace tips, and copper tubes, and a brass disc having perforations in the shape of a cross (Figure 5.23*e–j*).[71] George Quimby, a pioneer in the study of trade goods, has written that such items "are not trade goods, yet they were fashioned from a foreign material made by white men."[72] Yet it is clear that this was not always the case; the scavenging of copper and brass from kettles on the frontier

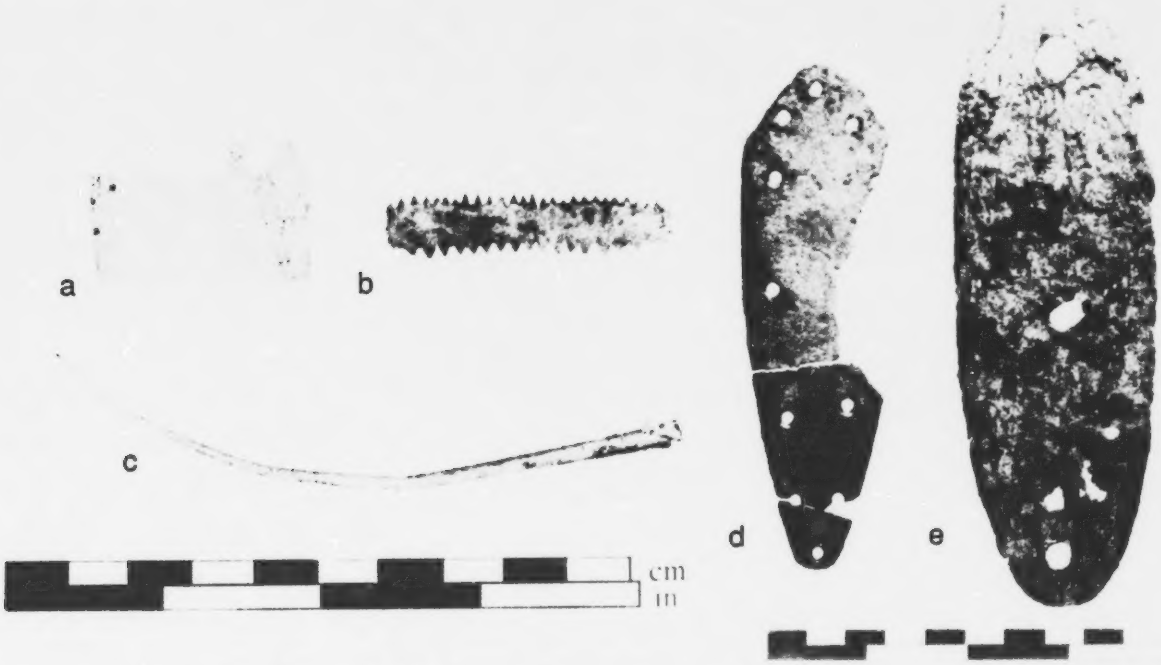

Figure 5.24 Copper and brass tools and gun furniture: *a*, copper template for making frame saw blades; *b*, probable thread gauge made of scrap brass, the fine teeth set at 16 per *pouce* (≈ 1 inch), the coarse set at 12; *c*, copper awl rolled from sheet copper; *d*, pieces of a brass butt plate for a musket; *e*, iron butt plate for a musket.

was just as much a European tradition. In our example it is apparent that these ornaments were manufactured in the Smithy by the Europeans themselves. Some of these simple items may have been made for trade with the Indians, but others—such as replacement tips for laces which were used extensively in fashionable dress—were for their own use. In addition they produced a wide variety of mundane utensils, fittings and tools of copper and brass. Makeshift candle holders, rolled from copper and tacked to a board (Figure 5.23*p–q*), were similar to a specimen from the wreck of the French vessel *Machault*. (1760).[73] Triangular and rectangular butt hinges (Figure 5.23*k–o*), probably for small leather or wooden containers, resembled specimens from Fort Michilimackinac.[74]

Sheet copper and brass were also used to make a variety of simple implements, such as rolled copper awls (Figure 5.24*c*) and the saw template and the thread gauge noted previously (Figure 5.24*a–b*). In gunsmithing, recycled kettle parts not only provided raw material for brazing, but also for an occasional fitting. A musket butt plate was chiseled and filed from brass scrap (Figure 5.24*d*).[75]

A direct use for recycled copper was for repairing other items (Figure 5.25 and Figure 5.26). Patches, strapping, and other fittings were commonly fashioned from strips of copper (Figure 5.25*a–e*). One heavy patch, perhaps for a boat, was chiseled and filed from sheet brass (Figure 5.25*e*). The most common repairs, however, were to copper kettles themselves. Diamond shaped pieces of copper were rolled into cones and flattened at the top to make rivets. These rivets were used both to patch leaks and to re-attach the handle lugs to kettles (Figure 5.26*c–d*), many of which had been fitted originally with solid copper ones (Figure 5.26*i*).[76] Also hexagonal copper washers or "roves" apparently were used in various repairs for reinforcement and to provide a better seal for rivets or nails (Figure 5.26h).

Dozens of miniscule sheet copper rivets were used to splice together the multiple panels of a large copper canister, a section of which is shown in Figure 5.27. The composite piece was laboriously built up from several large copper scraps, and bound on the outside by iron bands. As the lap joints of the copper leaves were not soldered, this vessel could not have been used to boil liquids, though it could

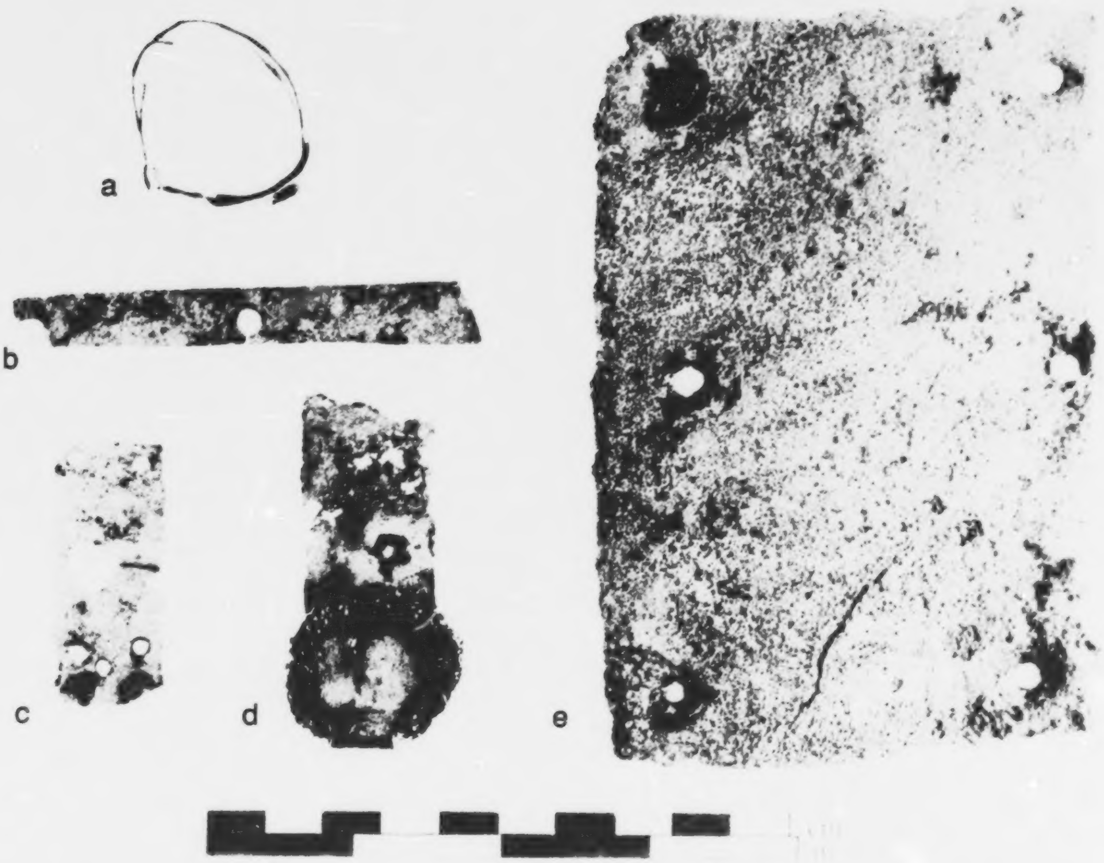

Figure 5.25 Sheet copper and brass strapping: *a*, copper rivetted collar; *b–c*, copper strapping; *d*, copper strapping with iron suspension ring, perhaps for a kitchen utensil; *e*, brass patch.

have been sealed with pitch or tar and used, for example, to haul water. Alternatively, this specimen may have been a large gunpowder canister designed to keep powder dry without fear of producing sparks as its contents were ladled out. A similar construction technique was employed for large vessels used in refining gunpowder.[77]

Perhaps more significant than its manufacture or function was the demise of this container. The piece is riddled with shot holes—holes which enter from both sides and apparently represent target practice. The effort required for its construction and the carelessness with which it was ruined pose something of a paradox. Apparently, though sheet copper may have been in short supply and worthy of salvage during Pentagoet III, its intrinsic value did not prevent it from being destroyed. Though this could reflect an act of sabotage, more likely it simply reflects the sort of idle entertainment to be expected on the remote frontier, and may help explain just why Pentagoet's pistols saw such heavy use and required constant repair.[78]

Missing Activities: Armoring, Farriering, and Trapping

Certain tasks, which might be expected to have left considerable remains in the smithy refuse, were not represented at all. Although negative, the evidence in these cases is strong enough for us to assert confidently that these activities did not take place at Fort Pentagoet. First, there is no evidence that armor was worn or repaired here, as was apparently the case at Fort La Tour as well.[79] Neither chain mail nor the iron tabs of brigandines, both found at

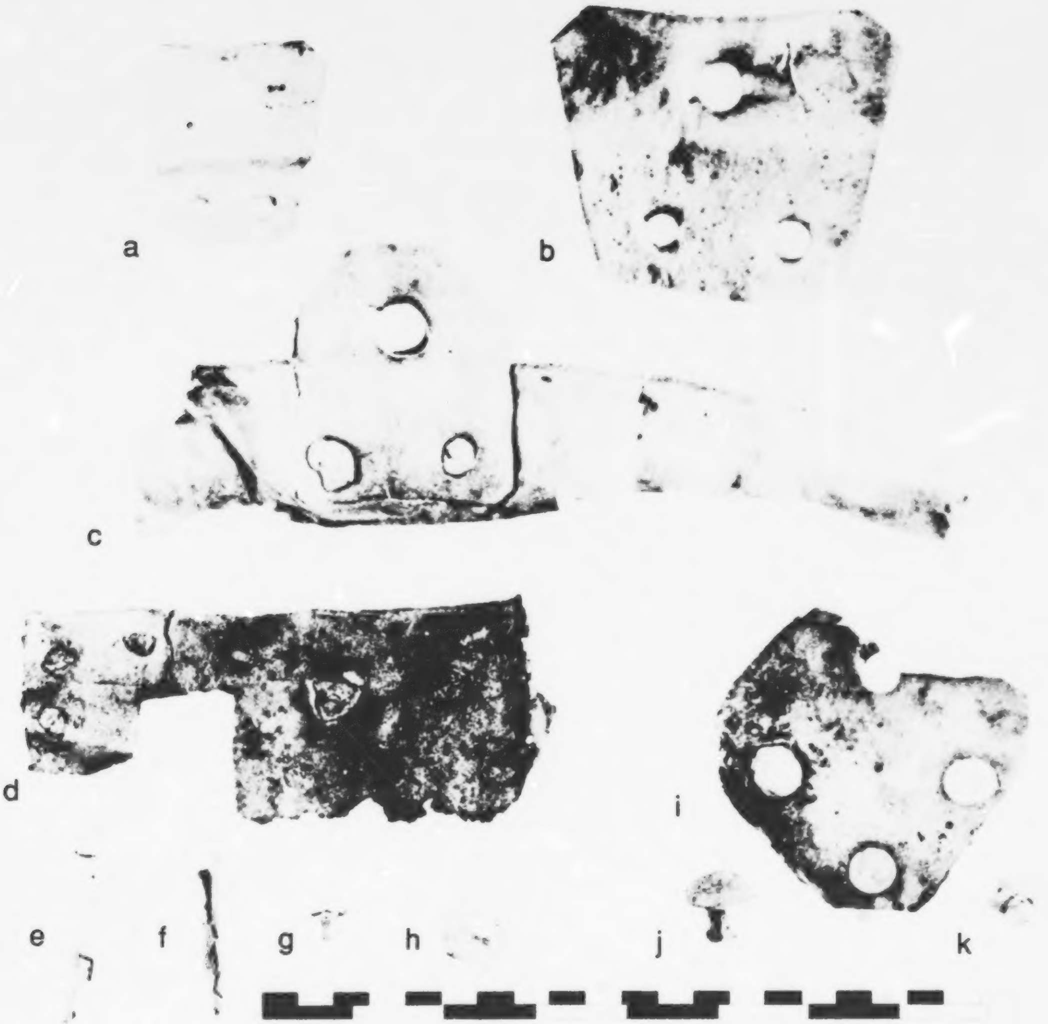

Figure 5.26 Copper and brass kettle scrap and repairs: *a–c*, kettle lugs for suspension from a bail passing through the upper hole; *d*, rim repair using rolled sheet copper rivets; *e–f*, rolled sheet copper rivets, unused; *g*, rolled sheet copper rivet, used; *h*, copper washer or rove; *i*, worn out suspension lug with original solid copper rivets; *j–k*, solid copper rivets.

contemporary English sites at Martin's Hundred in Virginia, were recovered.[80] With the perfection of firearms, the trade of the armorer changed in the 16th century, gradually merging with that of the gunsmith or arquebusier.[81] Evidently armor was considered either obsolete or inappropriate for use on the Acadian frontier.

Swords remained in use at Pentagoet, however, as is apparent from the recovery of various clasps, baldric buckles, an epée sling, and a scabbard tip. Yet it is surprising that the only direct evidence for the weapons themselves is the tip of a single epée. Swords, unlike pistols, saw little actual service, as maintenance was apparently infrequent. While the weapon may have been retained as an important symbolic accoutrement, it may have lost much of its significance as a weapon.

Also conspicuously absent from the armorers workshop

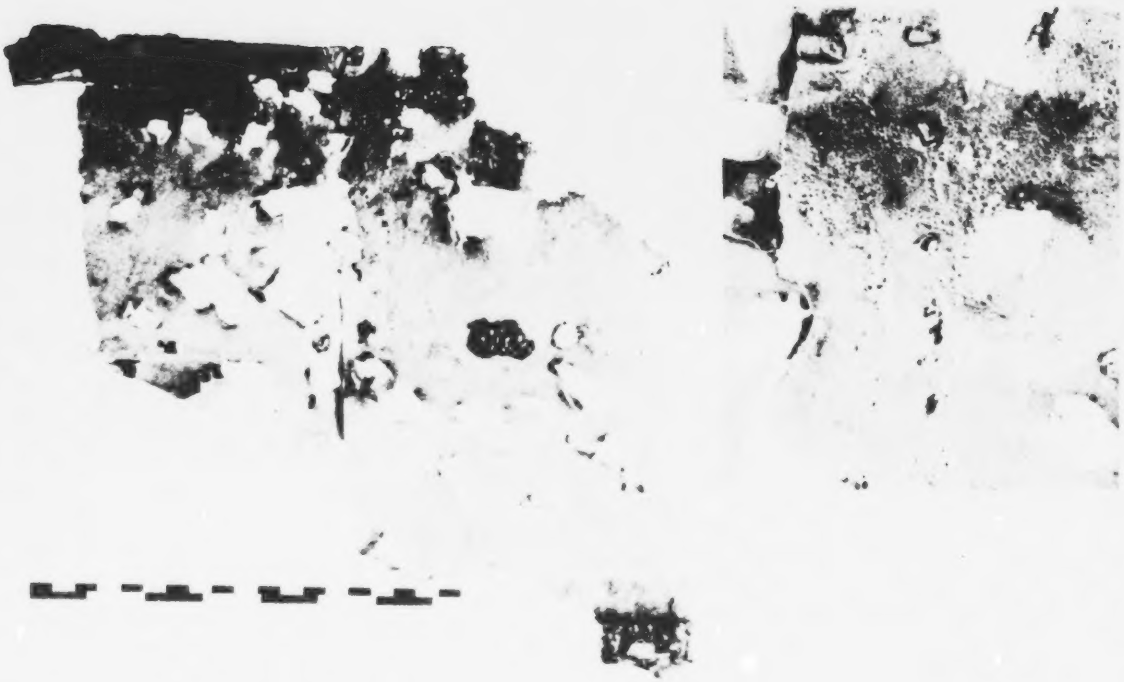

Figure 5.27 Target practice: canister made of multiple leaves of sheet copper reinforced with iron bands, and riddled with bullet holes. Detail shows miniature rolled copper rivets used to hold leaves of copper together.

were horse furniture, farriers tools and scrap, and similar items related to the use of beasts of burden. These materials should be a major component of any smithy attending to draft animals.[82] A single, unmistakable spur buckle was recovered from the paving in front of Structure 7, suspected to have been d'Aulnay's residence, but again this was surely a status item associated with dress. Similarly, a spur was also found at the Clarke and Lake site, but in spite of the presence of a smithy at that site, there is no evidence for horses.[83] Although horses were apparently imported into Virginia early in the 17th century,[84] it is no surprise that they were not in use along the islands and reticular coastline of western Acadia, where travel was far more efficient by boat. On the other hand, cattle are known to have been present on the site prior to 1670, as the Act of Surrender and the accompanying map indicates the presence of a cattle barn (Figure 4.2 "x" and Figure 4.3). Surely they were raised for food, as is indicated by the presence of Bos bones in Pentagoet I and III food remains. But if oxen were used as draft animals, they apparently were not shod.

Another artifact common to later smithy workshops but absent at Pentagoet was the gin or trap.[85] Although in use in the English colonies by 1650, these were not yet tools of the fur trade.[86] Pentagoet's hunters relied on firearms, while the Indians are said to have hunted beaver with spears, harpoons and arrows tipped with iron, and supplied by Europeans.[87]

Implications

Through the facilities of the early Pentagoet workshop and the skill of its armorer, the fort was prepared to provide numerous important services including reasonably advanced forging capabilities, competent, if not state-of-the-art, gunsmithing, and the production of first rate gunflints. At the same time, the heroic measures taken to maintain and repair certain key implements, particularly axes and firearms, shows the desperate shortage of durable goods in early Acadia. Conservation of scarce materials is also evident in the judicious, if somewhat primitive, recycling of sheet copper and brass and other materials into make-do, everyday utensils and fittings, as well as trinkets for trade. It would appear that the Yankee adage "use it up, wear it out, make it do or do without," describes a way of life practiced in earnest by their French predecessors in Maine. This pattern of independence, self-sufficiency and making do with available resources pervaded other aspects of life during Pentagoet I, particularly in exploitation of foodstuffs, discussed in Chapter 8.

The later forge and workshop of Pentagoet III has not been located within the walls of the fort, and may well have been moved outside for safety sake. Grandfontaine notes a *four* and a shed located somewhere in front of the gate (Figure 4.3 "R'). This may have been either a forge or a bake oven, but has yet to be identified and excavated. In any case, it seems highly likely that the later garrison of Pentagoet retained the basic capabilities of firearms maintenance reflected in the earlier period, and continued to supply copper ornaments and service firearms for the Indian population as part of the conduct of the fur trade. Grandfontaine and his ensign Saint-Castin became preoccupied with the fur trade, and must have dealt in the European products and services which had become vital to Indian survival.

When Pentagoet was destroyed in 1674 by the Dutch—with the blessing of the New Englanders—it left a gaping hole in the aboriginal supply sources, which the English refused to fill. Inhabitants from the English settlement at Pemaquid, on the other side of the frontier, rejoiced at the destruction of Pentagoet in 1674, rooting through the rubble of the enemy's fort to scavenge as much of the planking and ironwork as they could carry away.[88] Their joy, however, was short lived. Thomas Gardiner, formerly in command of the fort during the interim English occupation,[89] understood the situation clearly. In 1675, after the outbreak of war in southern New England led by the Wampanoag chief "King Philip," he wrote to Governor Leverett of Massachusetts:

> Sir I Conceive the Reason of your Troubles here may be occationed not only by som southern Indianes which may come this way But by our owne Acctings... These Indians Amongst us live most by Hunting as your Honour well Knoweth how we Can Take Away their Armes whose livlyhood dependeth on it... And seeing these Indianes in these parts did never Appear dissatisfied Vntill their arms wear Taken Away I doubt of any such Acctions whether they may be forced to go to the French for Releife or fight Against vs.[90]

But this was just the point. The services of the French had temporarily been eliminated, and the Indians had little recourse but to attack. The elimination of Pentagoet, coupled with the irrational English policy of disarming friendly Indians, brought on this new conflict. In essence, "King Philip's War," did not spread to Maine; an independent "Etchemin" or "Abenaki" war was created in Maine as a separate conflict. In the summer of 1676 the Indians pursued Gardiner's alternative. They systematically destroyed all but the southernmost of the English settlements in Maine, and the region was not permanently resettled for more than fifty years.[91]

◆

Notes to Chapter 5: Maintenance and Fabrication

1 Elsewhere in the site there is additional evidence for on-site manufacture and repair, including bone and horn working, reworking of delftware into gaming counters, and replacement of a knife panel grip with one of carved slate. The discussion here focuses on the principal subassemblages within and around the Pentagoet I Smithy.

2 This second, smaller concentration of scrap in the cellar kitchen of the Dwelling, Structure 1.1, begs an explanation. While we are at a loss to explain this concentration, we are confident that it was associated with 17th-century floors antedating the destruction of the fort, and was not fill redeposited there from the Smithy at some later date. One reasonable speculation is that cellar may have provided an alternative site for emergency repairs during foul weather. As might be expected, there is relatively little refuse from wrought iron working here, for the fireplace probably would not have served well as a make-shift forge.

3 "Lettre au Conseil d'État, 1644, 6 Mars," *Nouvelle France, Documents Historiques*, vol. 1, Librairie J. Demers, (Québec, 1893), p. 99. As has been pointed out to us by his descendants, this document errs in transcription, recording the name as "Germain *Dornet*," rather than "Doucet," and that he was more commonly known by the pseudonym "La Verdure."

4 Russel Bouchard, *Les Armuriers de la Nouvelle-France*, Serie Arts et Metiers, Ministère des Affaires Culturelles, (Québec, 1978), pp. 15, 24.

5 In other circumstances this layout might have indicated a bake oven accessible through the back of the fireplace, a common contemporary feature of rural French hearth construction in rural Vendée, France. See Pierre Drobecq, *La Chemenée dans l'Habitation: sa Survivance et la Technique de sa construction*, Vincent et Fréal, (Paris, 1942), pp. 57–58. However, the slag and smithy refuse found in association with the footings in question insure that they represent a forge.

6 This interpretation is based upon a re-examination of the description and plan of that forge given in Kenneth E. Kidd's *The Excavation of Sainte-Marie I*, University of Toronto Press, (Toronto, 1949), pp. 59–61 and Figure 8.

7 M. L. Brown, *Firearms in Colonial America*, Smithsonian Institution Press, (Washington, 1980), p. 243.

8 John D. Light, "The Archaeological Investigation of Blacksmith Shops," *Industrial Archaeology* [the American journal], (1984), vol. 10, no. 1, pp. 55–68 and Figure 1.

9 This pit, Feature 2, appears in profile in Figure 4.10. Unfortunately its limits were not nearly so clear when exposed in plan, due to disturbance in Pentagoet III. Whatever lining the pit may have had to hold water was apparently removed at that time, perhaps because it interfered with remodeling. Scaffolding support posts for the new roof were placed along the midline of the building in this process, and one of them seems to have been placed in the hole of the former quenching pit.

10 A similar subterranean slack pit appears in *The Armourer*, an engraving by J. Godfrey in our possession, apparently done from a 17th-century rendering by H. Leys.

11 "Biard's Relation, 1616," in Reuben Gold Thwaites, ed., *The Jesuit Relations and Allied Documents*, vol. 3, Pageant Book Company, (New York, 1959), p. 68, and "Le Jeune's Relation, 1636," ibid., vol. 9, p. 169.

12 "Col. Thomas Temple to Lord Fiennes and Company, December 27, 1658," *CSP*, vol. 1, p. 58. "Williamson's notes relating to America, c. 1667," *CSP*, vol. 5, f. 1660, p. 533.

13 "Petition of Samuel Wilson to the King," in the Parkman Papers, Archives of the Massachusetts Historical Society, p. 128.

14 Sandra K. Zacharias, James R. Hunter, and Ursala M. Franklin, "Technical Investigations of Iron-Working Remains from the French Jesuit Mission of Sainte-Marie Among the Hurons (1639–1649)," (1983), ms. on file, Huronia Historic Parks, Midland, Ontario, p. 9.

15 John D. Light, and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop 1796–1812*, Studies in Archaeology, Architecture and History, Parks Canada, (Ottawa, 1984), p. 86.

16 "Edward Winslow to John Winthrop, February 17, 1637," *Winthrop Papers*, vol. 3, Massachusetts Historical Society, (Boston, 1943), p. 392.

17 Harry Walton, *Sharpening*, Harper and Row, (New York, 1967), p 76. Bernard S. Mason, *Woodsmanship*, Barnes, (New York, 1945), p. 26.

18 Although broad bladed whip saws have been considered rare in this period, a similar specimen was apparently recovered from a contemporary English site on the James River at Eppe's Island, Virginia. Bruce Larson, pers. comm., January, 1985.

19 Russel Bouchard, *Les Armes de Traite*, Collection Populaire du Québec, no. 3, Boréal Express, (Sillery, Québec, 1976), p. 17.

20 Carl P. Russell, *Firearms, Traps, & Tools of the Mountain Men*, Knopf, (New York, 1967), pp. 248–249. At this early period and in this context it is quite likely, however, that these axes were indeed of French manufacture.

21 Carl P. Russell, *Firearms, Traps, & Tools of the Mountain Men*, pp. 255, 257 and Figures 61*c* and 61*d*. It is clear from the finds at the Clarke and Lake site and Pentagoet that this form of axe was produced nearly a century before the 1740 date suggested by Russell.

22 Ibid., Figure 70*d*. See also Bernard S. Mason, *Woodsmanship*, Barnes, (New York, 1945), p. 8.

23 Emerson, W. Baker, *The Clarke & Lake Company*, Occasional Publications in Maine Archaeology, no. 4, The Maine Historic Preservation Commission, (Augusta, 1985), Plate 18*a–b*.

24 Cf. Russel Bouchard, *Les Armes de Traite*, Figures 6–8.

25 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 236. Kenneth E. Kidd, *The Excavation of Ste. Marie*, p. 111.

26 John D. Light and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop*, (Ottawa, 1984), pp. 51–92.

27 This method has been described in detail for Fort Saint Joseph. John D. Light and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop*, pp. 59–60, 84.

28 Note, however, the failure of these axes could have involved a number of other factors unrelated to use, such as improper heat treatment and forging technique and the brittling effects of phosphorous and sulfur contamination from the coal fuel. See John D. Light and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop*, pp. 85–86.

29 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 236.

30 Cf. Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 234.

31 Steel trade axes would appear to be the norm, according to Russel Bouchard, "Les Armes de Traite," pp. 13–14.

32 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 238.

33 George I. Quimby, ***Indian Culture and European Trade Goods***, University of Wisconsin Press, (Madison, 1966), p. 71. Norman F. Barka, "Historic Sites Archaeology at Portland Point," Figure 50. Kenneth E. Kidd, ***The Excavation of Ste. Marie***, Figure 19. Russel Bouchard, *Les Armes de Traite*, p. 16, Figures 9.2–9.5 and 9.14. Carl P. Russell, *Firearms, Traps, & Tools of the Mountain Men*, Knopf, (New York, 1967), pp. 408–413.

34 Russel Bouchard, *Les Armuriers de la Nouvelle-France*, p. 15.

35 Carl. P. Russel, *Firearms, Traps, & Tools of the Mountain Men*, Knopf, (New York, 1967), p. 410.

36 M. L. Brown, *Firearms in Colonial America*, p. 188. Russel Bouchard, *Les Armuriers de la Nouvelle-France*, p. 7.

37 T. M. Hamilton, *Colonial Frontier Guns*, The Fur Press, (Chadron, Nebraska, 1980), p. 118.

38 William Bradford, *Of Plymouth Plantation*, p. 219. *Massachusetts Historical Society Proceedings*, vol. 45, Massachusetts Historical Society, (Boston, 1912), pp. 493–498.

39 Wilbur R. Jacobs, *The Appalachian Indian Frontier: The Edmund Atkin Report and plan of 1755*, University of South Carolina, (Columbia, 1954), pp. 9–10.

40 Russel Bouchard, *Les Armuriers de la Nouvelle-France*, pp. 18–19, 142.

41 M. L. Brown, *Firearms in Colonial America*, p. 244. Henry C. Mercer, *Ancient Carpenters' Tools*, 5th edition, Horizon Press, (New York, 1975), p. 291.

42 Norman F. Barka, "Historic Sites Archaeology at Portland Point," Plate 54.

43 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, Cambridge University Press (Cambridge, 1986), pp. 41–42.

44 The role of these pistols in hunting, however, was probably minimal.

45 J. P. Puype, pers. comm., 1985.

46 Alaric Faulkner, "Description and Analysis of Gunlocks from Colonial Pemaquid," *The Maine Archaeological Society Bulletin*, (Augusta, 1986), vol. 26, no. 1, pp. 65–66.

47 Harold L. Peterson, *Arms and Armor in Colonial America 1526–1783*, The Stackpole Company, (Harrisburg, Pennsylvania, 1956), Plate 25.

48 J. P. Puype, pers. comm., 1985.

49 Alternatively, it is possible that Pentagoet's armorer was supplied with a few "blanks," or unfinished pieces which could be custom fitted to damaged firearms. However, considering the range of lock mechanisms represented in the site and the degree to which scavenging old lock parts was practiced, it would appear that such replacement parts were apparently not generally available.

50 M. L. Brown, *Firearms in Colonial America*, (1980), pp. 87–88.

51 Cf. M. L. Brown, *Firearms in Colonial America*, (1980), p. 54.

52 T. M. Hamilton, *Firearms on the Frontier: Guns at Fort Michilimackinac 1715–1781*, Reports on Mackinac History and Archaeology, no. 5, Mackinac Island State Park Commission, (Williamston, Michigan, 1976), pp. 118, 121–122.

53 At first these features were interpreted variously as inlay work, mountings, or sights, but the subsequent cleaning of the specimen shown in Figure 5.16b and the discovery of a separate brass coated slug similar to those used in the repair makes their significance unmistakable.

54 E.g. T. M. Hamilton, *Colonial Frontier Guns*, pp. 138–139, and John Witthoft, "A History of Gunflints," *Pennsylvania Archaeologist*, (1966), vol. 36, pp. 28–34.

55 Within these two major types of gunflint, there are many variations, especially in trimming and mounting in the lock, but the general principles outlined here still hold.

56 A morphologically identical flint makes up the debitage from Fort William Henry in Colonial Pemaquid, although none of the complete gunflints appears to have been made from it. It appears that at this later English site the flint may have been used merely to make strike-a-lights for starting fires, rather than for gunflint production, and the gunflints, which are of various other flints, were imported.

57 These decortication flakes were not all trimming pieces, strictly speaking, for in some cases they were used to make finished gunspalls. The natural curvature of the nodule exterior was often used to form the heel of the gunflint, and the cortex was then then partially removed by secondary retouch.

58 These have been retouched on the ventral side of the spall, and have been classified Type 1A by Jean-François Blanchette, "Gunflints from Chicoutimi Indian Site (Québec)," *Historical Archaeology*, vol. 9, (1975), pp. 48–50. See also Jean-François Blanchette, "Firearms," in *Burr's Hill: A 17th Century Wampanoag Burial Ground in Warren, Rhode Island*, Susan G. Gibson, ed., The Haffenreffer Museum of Anthropology Studies in Anthropology and Material Culture, vol. 2, Brown University, (Providence, 1980), pp. 69–70.

59 E.g. Barry C. Kent, "More on Gunflints," *Historical Archaeology*, (1983), vol. 17, no. 2, pp. 31, 38, and Table 2. John Witthoft, "A History of Gunflints," p. 28. T. M. Hamilton, *Colonial Frontier Guns*, pp. 24–26. Lee H. Hanson, Jr., "Gunflints From The Macon Plateau," *Historical Archaeology*, (1970), vol. 4, p. 55, Figure 3.

60 John Witthoft, "A History of Gunflints," pp. 26–28.

61 Jean-François Blanchette, "Gunflints from Chicoutimi Indian Site (Québec)," p. 50.

62 E.g. Jean-François Blanchette, "Gunflints from Chicoutimi Indian Site (Québec)," pp. 48–50 and Jean-François Blanchette, "Firearms," pp. 69–70.

63 Lyle M. Stone, "Gunflints From Fort Michilimackinac," *Northeast Historical Archaeology*, (1972), vol. 2, no. 1, pp. 45–50.

64 M. L. Brown, *Firearms in Colonial America*, p. 84.

65 T. M. Hamilton, *Colonial Frontier Guns*, pp. 131–133.

66 Within buildings, of course, all exposed shot was melted in the destruction of the fort at the end of Pentagoet III.

67 Note that following the conversion tables of Hamilton, the size of the musketballs has been calculated using the French "calibre," originally derived as the number of balls of a given size per livre of lead. This unit is closely related to the English "bore" or "gauge," and quite unrelated to our "caliber," figured in hundreths of an inch. T. M. Hamilton, *Colonial Frontier Guns*, pp. 130–131, 133–137

68 T. M. Hamilton, *Colonial Frontier Guns*, p. 129.

69 George I. Quimby, "The Bayou Goula Site," *Fieldiana: Anthropology*, vol. 47, no. 2, (1957) p. 138.

70 Kenneth E. Kidd, The Excavation of Ste. Marie, pp. 130–131. Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 272–274. Timothy Dilliplane, "European Trade Kettles," in *Burr's Hill: A 17th Century Wampanoag Burial Ground in Warren, Rhode Island*, Susan G. Gibson, ed., Haffenreffer Museum of Anthropology, Brown University, (Providence, 1980), pp. 79–84. John D. Light, and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop*, pp. 31–35.

71 Cf. George I. Quimby, *Indian Life in the Upper Great Lakes*, University of Chicago, (Chicago, 1960), p. 151.

72 George I. Quimby, *Indian Culture and European Trade Goods*, University of Wisconsin Press, p. 72.

73 E. I. Woodhead, C. Sullivan, and G. Gusset, *Lighting Devices in the National Reference Collection, Parks, Canada*, Studies in Archaeology, Architechture and History, Parks Canada, (Ottawa, 1984), Figure 21.

74 Cf. Lyle M. Stone, *Fort Michilimackinac*, pp. 193–194.

75 This specimen matches a butt plate from a complete Dutch musket found in a Seneca burial in western New York dated to 1630–1650. Cf. T. M. Hamilton, *Colonial Frontier Guns*, Figure 4. See also Charles F. Wray and Harry L. Schoff, "A Preliminary Report on the Seneca Sequence in Western New York 1550–1687," *Pennsylvania Archaeologist*, (1953), vol. 23, no. 2.

76 Lyle M. Stone, *Fort Michilimackinac*, p. 192, Figures 108–109. Lee H. Hanson, Jr. and Dick Ping Hsu, *Casemates and Cannonballs: Archaeological Investigations at Fort Stanwix, Rome New York*, Publications in Archeology, no. 14, National Park Service, (Washington, 1975), Figure 71c. John D. Light, and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop*, Figure 31c–h.

77 M. L. Brown, *Firearms in Colonial America*, p. 213.

78 In 1645, one group of drunken English fishermen on Stratton's Island in Saco Bay entertained themselves in a similar fashion. They took powder out of the barrel "by handfuls without othar mesure &... they shot so loung that the're peces were so hott that they Could hould them no longer in their hands." DHSM, vol. 4, pp. 6–8.

79 Norman F. Barka, Historic Sites Archaeology at Portland Point, pp. 296–312.

80 Ivor Noel Hume, *Martin's Hundred*, Knopf, (New York, 1982), pp. 123, 141.

81 Russel Bouchard, *Les Armuriers de la Nouvelle-France*, pp. 9–10.

82 Cf. John D. Light, and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop*, pp. 24–26.

83 Two "harness escutcheons" identified by Baker are, in fact, parts of a powder horn, and a clothing clasp respectively. Emerson W. Baker, *The Clarke and Lake Company*, Plate 19.

84 Ivor Noel Hume, *Martin's Hundred*, pp. 147–148.

85 Cf. John D. Light, and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop*, pp. 27–31.

86 Carl P. Russell, *Firearms, Traps and Tools of the Mountain Men*, pp. 113–114.

87 William F. Ganong, editor and translator, *Description and Natural History of the Coasts of North America (Acadia) by Nicolas Denys*, The Champlain Society, (Toronto, 1908), pp. 442–443.

88 "Plea and Answer of Peter Rodrigo & Others, 1675," *DHSM*, vol. 6, p. 63.

89 "Deposition of Edward Naylor, October 25, 1666," *DHSM*, vol. 6, p. 21

90 "Thomas Gardiner, Letter to Gov. Leverett, 1675," *DHSM*, vol. 6, p. 91–93.

91 This was not the last time the English made this mistake. A similar situation occurred among the Catawbas, who, with their neighbors, invaded South Carolina in 1715. James H. Merrell, "The Indians' New World: The Catawba Experience," *The William and Mary Quarterly*, (1984), vol. 41, no. 4, p. 553.

Chapter 6

Clay Tobacco Pipes
The Democratization of a Bad Habit

The clay tobacco pipe, usually one of the most frequent artifacts on a colonial site, records the phenomenal growth in popularity of smoking in the 17th century.[1] At the beginning of the century, however, tobacco was an expensive drug, smoked only in tiny pipe bowls. Although tobacco was cheaper, and larger bowls were in use by the time Fort Pentagoet was constructed, smoking must still have been costly on such remote frontier sites because it demanded frequent replenishment of exhaustible supplies originating in separate European and American locations. Furnishing the garrison with pipes and tobacco competed with the procurement of essential provisions such as flour, wine, powder and shot, and other necessities. While it is apparent that smoking had already become an important part of everyday life in Europe, it may not have been practiced so freely at frontier outposts where supply was both infrequent and irregular.

The variation in forms of clay tobacco pipes are useful in identifying their origins and periods of manufacture, a first step in determining where the supplies came from to support this luxury and whether they were equally available throughout all periods of the fort's occupation. Pipe origins are especially important at Pentagoet in assessing the effectiveness of French supply lines and in determining the degree to which the fort's company depended on their New England adversaries. France evidently had no major pipemaking industry in the 17th century, and as a result nearly all of the imported clay tobacco pipes encountered on colonial sites in North America are of English or Dutch manufacture.[2] Dutch pipes are relatively rare on English colonial sites, particularly after 1650 when English navigation laws restricted trade to goods carried in ships of English registry. Dutch pipes, on the other hand, are usually quite common on French colonial sites throughout the 17th century. Supplementing these European white clay pipes are local imitations made of redware, which appear in small number on both English and French sites in the Northeast.

Tobacco pipes exist in different models, and their designs can be studied to help determine whether they were intended for relaxation or for work. The spatial distribution of these models, moreover, can reveal how these non-essentials were distributed among the fort's company, and so measure the degree of social differentiation reflected by the privilege of smoking. The pattern formed by these two lines of evidence can help in determining whether smoking was reserved for the elite, whether it was a habit practiced equally during leisure and work, and whether it was restricted to certain areas within the compound.

Clay tobacco pipes lend themselves to this sort of analysis because, like ceramic vessels, they generally occur in large numbers on a site, have short lifespans, and exhibit considerable variation in form. Of their many attributes, pipe bore diameters were especially helpful in reconstructing the developmental history of the fort in Chapter 4. In order to study these questions of supply and social differentiation, however, it is necessary to consider a broader range of stylistic and technological attributes, including form, finish, decorative technique, and specific markings or motifs.

Clay pipes usually occur as fragments in an archaeological site, and are so numerous that in spite of protracted efforts to mend them, it is rarely possible to reconstruct a single, complete specimen. Consequently the attributes of different parts of the pipes must be classified separately. The details of the Pentagoet pipe typologies appear in Appendix E. The principal distinction of pipe forms is based on the form and decoration of the bowl, as it is one of the stronger portions of the pipe and frequently survives intact. A secondary classification is required for the heel area of the pipe, located at the junction of the bowl and the stem, as it often survives separately and can not always be associated with a particular bowl type. The heel, which may exist in many different forms, is the most common location for maker's marks on 17th-century pipes. Similarly, a few pipestems show distinctive decorations and maker's marks which require separate cataloguing.

Bowl Forms

The collection of whole and fragmentary bowls has been classified into 9 major types, which, in some cases, have been subdivided into a number of varieties. Virtually all of

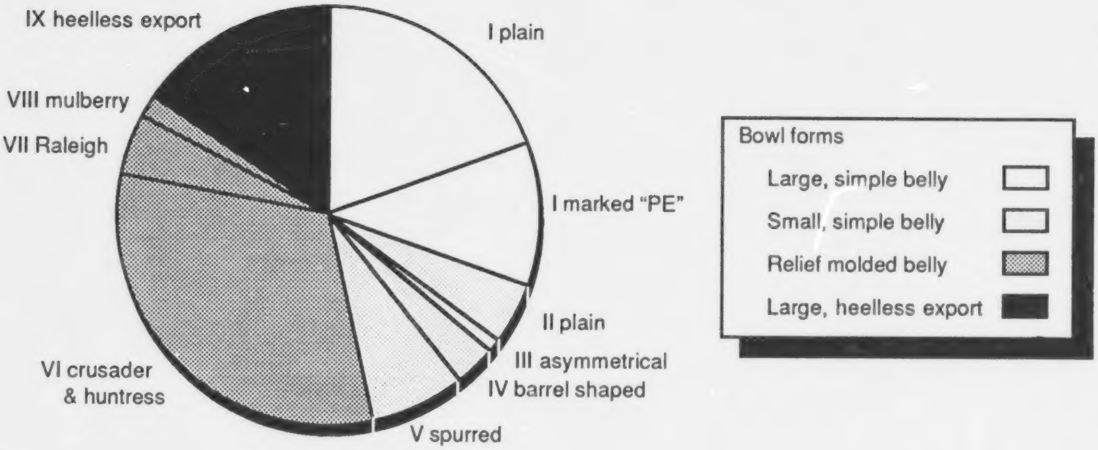

Figure 6.1 European clay tobacco pipes: bowl types.

the pipes in the collection fall into two basic forms: they are either "belly bowls"— small swollen or globose forms having flat heels or pointed spurs at the junction with the stem—or they are "export" pipes—funnel-shaped bowls which are slightly larger, having little or no swelling in the middle, and lacking heels or spurs (Plate 11).[3] Whether of "belly bowl" or "export" form, they all have characteristics common to both English and Dutch pipes of the middle quarters of the 17th century. The bowls tilt forward, and, unlike later English tobacco pipes, the rims are cut in a plane tilting away from the smoker rather than parallel to the stem. Also, with the exception of one major type, all pipes show some form of dentate rouletting or "milling" about the upper margin of the bowl, formed by a tool called a "mushroom" which finishes the rim after the interior of the bowl has been formed.[4]

The variation in bowl shapes is remarkably limited considering the length of time the fort was occupied (Figure 6.1). The 17th-century assemblage is dominated by three principal tobacco pipe types which account for nearly 78% of the 125 fully describable European bowls in the collections, while the remaining 22% of the collection is distributed among seven other types. In order of frequency, the major types include the relief molded "crusader-and-huntress" belly bowl (Type VI), large plain belly bowls, many of which bear the heelmark "PE" (Type I), and large, heelless, "export" pipes (Type IX). Less popular were various smaller forms of plain, belly bowls (Types II, III, and IV), all having flat heels except for one (Type V) which has a spur at the base of the bowl. Also present in small numbers were two relief molded types, one showing the head of Sir Walter Raleigh (Type VII), and the other bearing clusters of raised dots in "mulberry" (Type VIII) or "Tudor rose" (Type VIIIa) configurations.

Simple Belly Bowls

Unfortunately, the plain, unmarked products of English and Dutch pipemakers of the second and third quarters of the 17th century are rather difficult to distinguish. This was a period of considerable emigration of craftsmen from England to the Netherlands, seeking opportunity or religious freedom. Naturally the flow of pilgrims included a number of English pipemakers, with the result that many of the most popular pipe forms are to be found in both countries. During this period belly bowl pipes were produced both in England and the Netherlands in a variety of shapes and sizes, some with spurs and some with heels and all having rouletted bowl rims that tilt away from the smoker—exactly the characteristics of Pentagoet's specimens (Figure 6.2).

These belly bowls are difficult to date precisely. Evolutionary chronologies which have been established for these pipes show general changes from small, globose shapes to larger, taller forms over the course of the first three quarters of the 17th century as tobacco became cheaper.[5] While this overall transition from small pipes to larger ones is real, it is becoming increasingly apparent from tightly dated finds that both small and large belly bowls were in use simultaneously during the period Pentagoet was occupied.[6] Thus, while the increase in size may be considered a general trend, it is not safe to assume that the smaller pipe forms at Pentagoet necessarily antedate the larger ones. Specific diagnostic details, particularly maker's marks, are more reliable indicators of chronology.

Type I, large forms. Some 38 or 30% of the white clay pipe bowls fall into this category, making it second in frequency

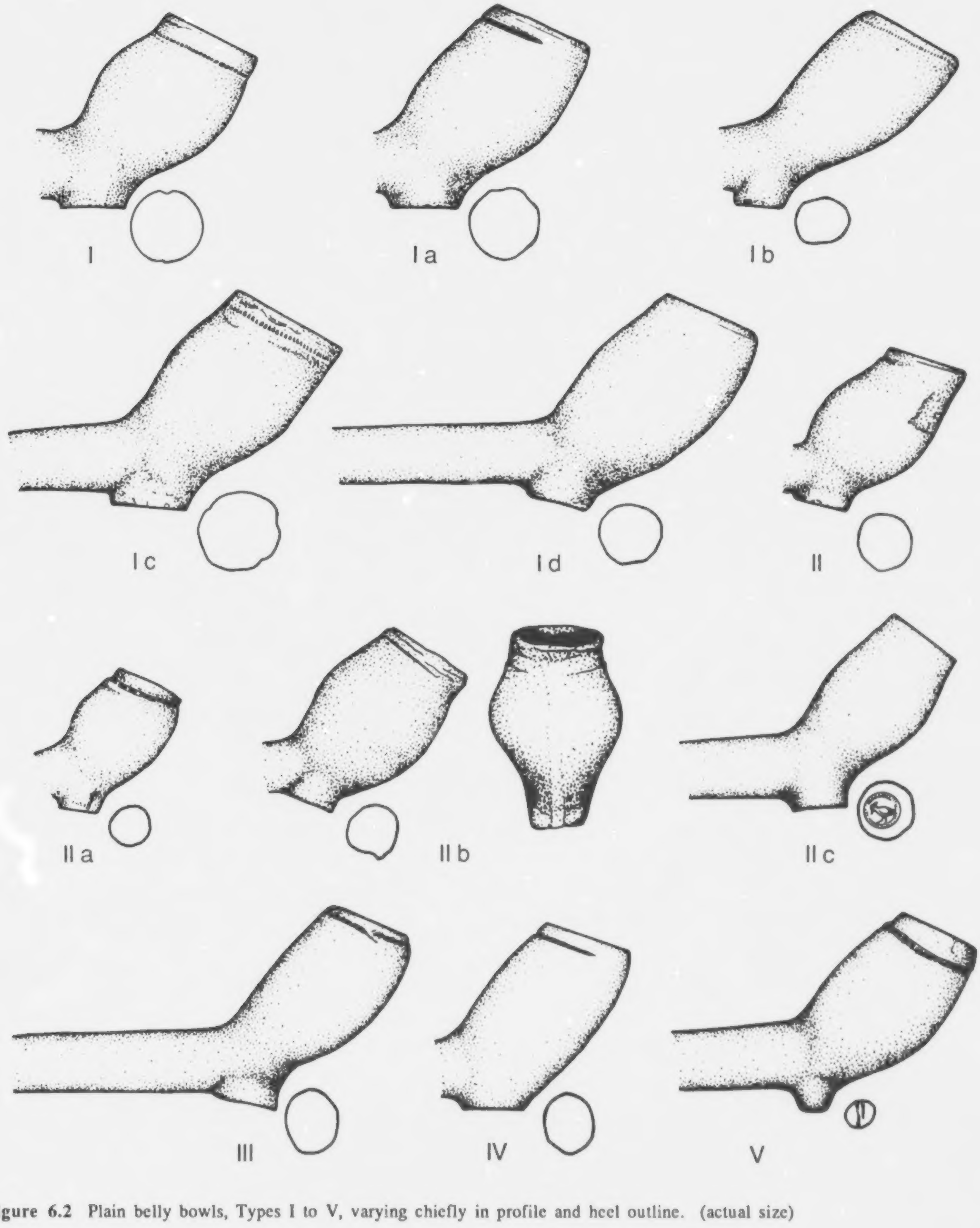
I
I a
I b
I c
I d
II
II a
II b
II c
III
IV
V

Figure 6.2 Plain belly bowls, Types I to V, varying chiefly in profile and heel outline. (actual size)

to the crusader-and-huntress pipe. According to the classic typology of English tobacco pipes prepared by Atkinson and Oswald, similar large belly bowls were produced in England between 1640 and 1680, a range which nearly covers the entire lifetime of Pentagoet.[7] There are, however, two notable differences between Type I pipes and the English archetypes: the Pentagoet bowls tilt further forward and are slightly larger. The discrepancy in bowl tilt may be due to the fact that the Atkinson-Oswald typology is based primarily on London pipes, and does not reflect the entire range of English production. While extreme forward tilt is generally thought to be a Dutch characteristic, the angle here is also within the range of English pipes from the West Country. Several specimens from this area, particularly those from Bristol marked "PE," show the same forward tilt as Pentagoet's Type I pipes.[8]

At least 13 of the Type I large belly bowls bear the PE heelmark, now well-recognized as the mark of Philip Edwards, the name of two Bristol pipemakers at work between 1649 and 1680. Collections from Bristol show that one or both of them made PE pipes in a wide range of sizes, although none of the illustrated specimens are quite as broad as the Pentagoet examples.[9] If indeed the larger specimens do represent the Edwards' later products, as is commonly supposed, they may represent either the English occupation of Pentagoet II, or supplies acquired by the French from New England traders during Pentagoet III. In clear association with Pentagoet III is a single Type I belly bowl marked "LE" on the heel, the product of another Bristol pipemaker, Llewellin Evans, at work between 1661 and 1686.[10] The presence of PE and LE marks on 14 or nearly 37% of Type I pipes indicates that many of these large belly bowls were products from Bristol manufactured late in the third quarter of the 17th century.

Although all Type I pipes have flat heels, there is considerable variation in size, outline, and cross-section; most are round or sub-round and project only slightly from the bottom of the bowl. One variant, thought to belong to these large belly bowls, is the plain mushroom-shaped heel (heel Type III), of which there are five examples at Fort Pentagoet (Figure 6.3). This platform-like projection is rare, if known at all, on other sites. Its design demonstrates, however, that one function of the heel was to allow the bowl to stand upright when placed on a horizontal surface. This was a practical design, permitting the pipe to be set down, and thus freeing the hands of the user to go about his duties.

Type II, small forms. Type II pipes are also flat heeled belly bowls, but are significantly smaller than Type I pipes. This group, which includes only six specimens, or just 5% of the white clay pipes, is probably a heterogeneous mixture of English and Dutch products from different occupations. The smallest of these pipes, Type IIa, seems to be of a size so small that it could only have been manufactured during Pentagoet I, and it is essentially identical to a London type dated between 1610 and 1640.[12] Unfortunately the single specimen recovered was found in a disturbed context. The remaining Type II varieties, being somewhat larger, could have been manufactured during any of the occupations of the fort.

With the exception of Type IIc, all of the heels are canted away from the smoker at an angle oblique to the stem. Thus, unlike most of the Type I specimens, these bowls could not have stood upright when placed on a table. Note also that IIc shows a distinctive, albeit faint, mark of a bird on the heel which probably indicates manufacture in the Netherlands.

Type III, asymmetrical with canted heel. This is a unique specimen at Pentagoet which shows a distinctive forward extension of the bowl out over the heel, similar to many chinned pipes made in the West Country of England. Unlike English pipes of the period, however, the inner margin is nearly straight, and the heel is cut at an angle tilting away from the smoker. The high luster on this pipe, the result of burnishing the clay before firing, suggests that it is of Dutch origin. It was found in the cellar kitchen of the Dwelling (1.1) where it apparently had been deposited during or shortly after the demolition of the fort in 1674.

Type IV, straight-sided. Just four examples, or 3% of the white pipe collection, are of this barrel shape, having gently convex sides with no major constriction at the heel or rim. The form appears in the London typology where it has been dated in the range 1660 to 1680.[13] In spite of this possible English origin, bowls of this form have also been unearthed at Champlain's Habitation, a site which is otherwise remarkably free of English products during this period.[14]

Type V, spurred. The final belly bowl type is relatively more popular, represented by 9 specimens or nearly 7% of the white pipes. The distinguishing characteristic of this

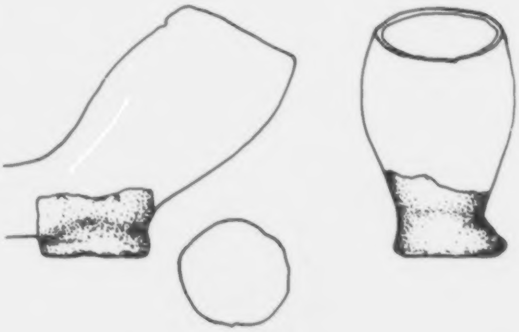

Figure 6.3 Mushroom-shaped heel, Type III, a variant form thought to belong to large, plain, Type I belly bowls. (actual size)

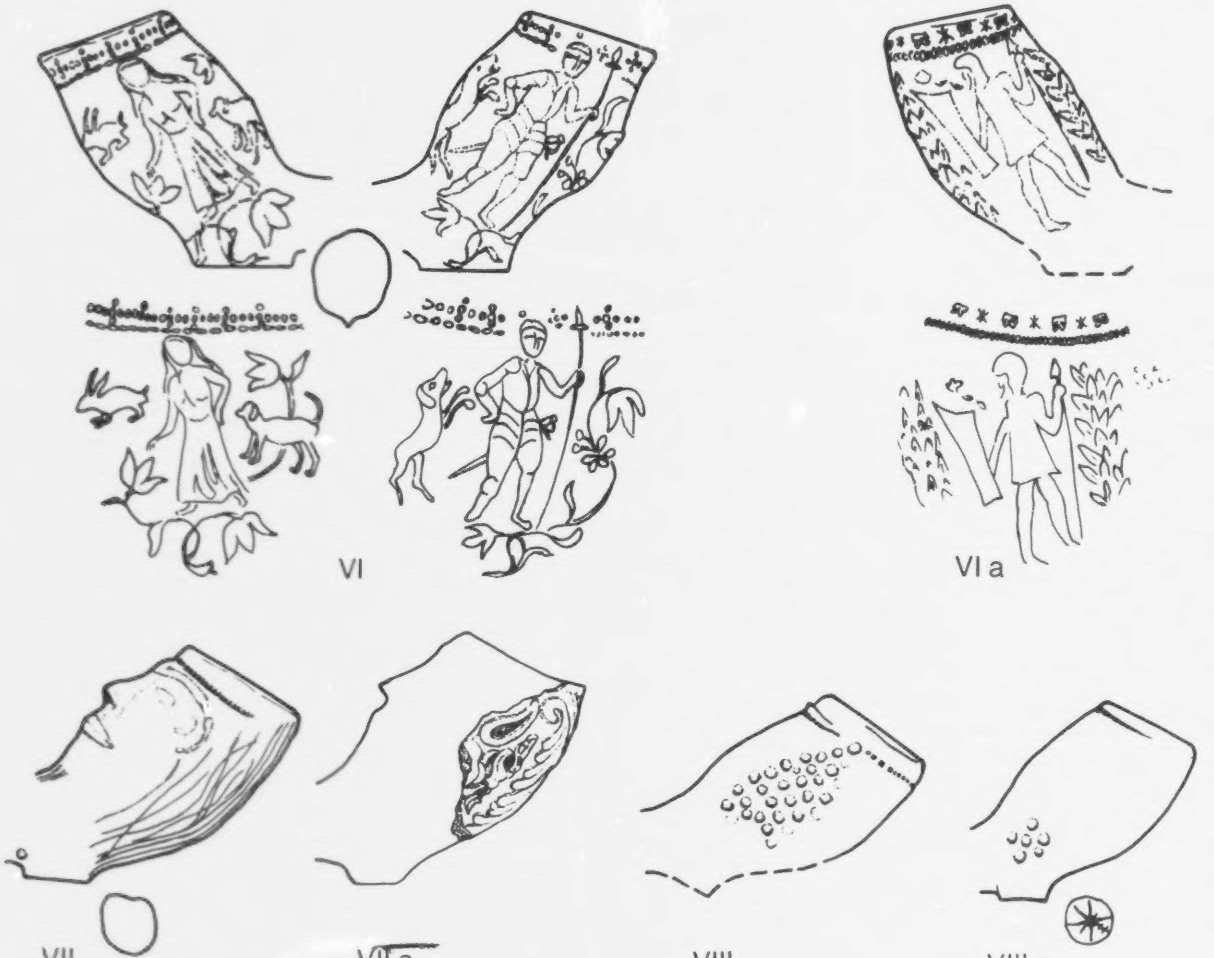

Figure 6.4 Relief-molded belly bowls: Type VI, crusader-and-huntress; Type VIa, crusader with shield; Type VII, Walter Raleigh debased; Type VIIa, Walter Raleigh detailed; Type VIII, mulberry; Type VIIIa, Tudor rose. (actual size)

type is that it has a spur rather than a flat heel at the base of the bowl. While spurs become the general rule on the funnel-shaped pipes of the 18th century, they are far less common on mid-17th-century belly bowls. The Atkinson-Oswald typology of London pipes recognizes a very similar form, dating it in the range 1660 to 1680.[15] This pipe form was favored by at least one occupant of the Officers' Quarters just prior to the demise of Pentagoet in 1674.

Relief Molded Belly Bowls

One of the principal characteristics distinguishing Dutch and English pipes is the presence of relief molding. Although most products of both English and Dutch pipemakers were plain, pipologists agree that in the 17th century the Dutch had a near monopoly on the production of pipes with molded ornamentation.[16] The Pentagoet assemblage, moreover, is unusual in having an extremely high percentage of pipes decorated in this fashion, dominated by a single motif: the "crusader-and-huntress" (Figure 6.4). These bowls are particularly easy to recognized from small fragments; consequently their proportional representation at the site may be somewhat over-estimated. Some 48, or 45%, of the 106 white clay belly bowls show relief molding, suggesting that the Dutch were indeed major suppliers of pipes to Pentagoet. This supply was probably indirect, however, the pipes coming through French channels such as the port of La Rochelle.

Type VI, crusader-and-huntress. The most frequent of all pipe types at Pentagoet, decorated or plain, is the relief molded "crusader-and-huntress" pipe. There are at least 40 examples, constituting more than 31% of the white pipes and

38% of the belly bowls. This large belly bowl is slightly broader than most of the plain Type 1 specimens, but is of the same general outline as Type Ia. The molded decoration covers the entire surface of the bowl, and there is a fancy border of raised dots about the rim in place of rouletting. The elaborate embossing is characteristically Dutch, although, unlike most relief molded pipes from Holland, its stem is plain.

While the allegorical significance of the scene is not known at this time, the theme is surely heroic. On the right side of the pipe, from the smoker's perspective, the design shows a soldier in full armor, a sword at his waist. This figure stands at ease, leaning against the spear in his left hand, his right arm akimbo, a dog leaping at his elbow. Balancing this design on the smokers left is a woman in a long, flowing dress, flanked by a rabbit and another dog. A stylized vine with tulip-like flowers and berry-like fruit fills much of the space between the figures on both sides of the pipe. A variant of this motif, Type VIa, shows a soldier holding a rectangular shield in his right hand and a spear in his left, and is represented at the site by a single bowl fragment.

Based on its occurrence on sites in Britain and the Netherlands, the manufacture of the crusader-and-huntress pipe has been dated from c. 1670 to c. 1700.[17] The suggested *terminus post quem* of c. 1670 explains, in part, the absence of this type on many 17th-century sites in the American northeast. There is no evidence that the crusader-and-huntress pipe was ever common in the Dutch colonies themselves, nor was it a significant trade item with the Indians. Recent excavations at 7 Hanover Square, Stadthuys, and Fort Amsterdam in New York City and at Fort Orange in Albany have failed to produce any examples.[18] Neither have they been described on any of the numerous Iroquois sites of New York which were within the immediate sphere of Dutch influence.[19] This pipe form appears, therefore, to have been imported only after the period of Dutch colonization, which ends, in effect, in 1664. Similarly the pipe form is unknown at early French colonial settlements, including Sainte-Marie among the Hurons, Ste. Croix, and Fort La Tour. At Pentagoet, crusader-and-huntress bowls are restricted to Pentagoet III occupation surfaces which were buried in rubble when the fort was destroyed in 1674. The bowls are often found whole, or nearly so, and this limited fragmentation suggests further that they were only introduced on the site very late in its history—probably no earlier than the beginning of Pentagoet III in 1670. Consequently the crusader-and-huntress pipe may be regarded as a valuable time marker.[20]

As with most Dutch products, these items probably reached Pentagoet indirectly by way of La Rochelle, where they may have been obtained as one of the commodities exchanged in the wine trade between the Saintonge region and the Netherlands. This may explain, in part, why the pipe does not occur at Champlain's Habitation in Québec, which was supplied principally through Norman and Breton ports.[21] In fact, the only other French colonial site which has yielded these pipes in any significant number is Pentagoet's successor, Saint-Castin's Habitation.

While they may occur in great quantity on a few selected French sites, crusader-and-huntress bowls also occur regularly as a very small percentage of the collection on contemporary English sites in Maine, including the village of Pemaquid, the fishing stations at Damariscove and Sagadahoc Island, the Clarke and Lake Company Trading Post, and the Thomas Moulton homestead.[22] These were all sites which were occupied at the outbreak of the Indian wars in 1676. They may have acquired these goods from Saint–Castin who traded with the English on a regular basis even before the demise of Pentagoet in 1674 and his subsequent relocation further up the Bagaduce River. This distribution suggests that the importation of these items to southern Acadia was idiosyncratic: there arrived here a few shipments of elegant and relatively unusual pipes which, because of their heroic European motif, had little appeal to the Indians, but which could readily be "put away" with the English to the south.[23]

Type VII, Raleigh. One of the most interesting pipe forms recovered at Pentagoet is a debased version of the "Raleigh" pipe. Far less popular at Pentagoet than the crusader-and-huntress style, this well known relief molded type comprises just 6 examples or less than 5% of the white pipe bowls. The motif depicts a human head, interpreted as the bust of Sir Walter Raleigh. Although a single fragmentary example at Pentagoet shows details of the ear and beard in sharp relief (Type VIIa), the remainder of the Raleigh pipes are much simpler (Type VII). The relief is so low and the design so crude and simplified that it easily can be overlooked on fragmentary examples. No decorated stems associated with this pipe have been recognized at Pentagoet, but the prototype on which this pipe form is based shows a stylized crocodile, its jaws wide open in the process of swallowing the head. The motif supposedly depicts the legend that on one of his voyages Raleigh was attacked by a crocodile, but was regurgitated by the animal because of the smoke and tobacco juices which permeated his body.[24]

The Dutch must have been fascinated by the legendary properties of tobacco as a crocodile repellent, because they manufactured a wide variety of molded pipes bearing this scene from the 1630s through the end of the century.[25] Some are extremely detailed and ornamented in high relief, while others, like most of the Pentagoet specimens, are "debased" or simplified versions.[26] Although the debased forms may not have been produced until after c. 1650, both detailed and debased forms coexist on archaeological sites thereafter.

No such pipes have been found in the Fort La Tour assemblage, but two example, one ornate and the other simplified, have been recognized at Champlain's Habitation.[27] Raleigh pipes, do occur at Fort Orange in contexts tentatively dated before 1640, but they are of the sharp relief varieties.[28] Debased specimens, identical to Pentagoet's Type VII, have been found at a number of other locations in Maine. The English Clarke and Lake Company site has produced one example along with what appears to be a fragment of the crocodile stem.[29] An identical bowl fragment comes from the so-called "Nahanada" site, an historic Indian settlement near Pemaquid.[30] Here was a motif that any aborigine could appreciate. Not only was this an "effigy pipe," which closely resembled certain native pipe styles, but it showed a European being consumed by a monster.[31]

Type VIII, "mulberry" and "Tudor rose." For convenience, the single examples of the embossed "mulberry" motif, Type VIII, and the "Tudor rose," Type VIIIa, are classified together because they both are decorated with a series of raised dots placed on the sides of the bowl. There is, however, no general consensus about the significance or origin of these wart-like clusters. The larger groupings are variously described as an orange tree or a mulberry bush, and attributed to the Dutch and English respectively. The smaller cluster of five dots around a central dot is often referred to as a Tudor rose, although it appears to have been a popular Dutch mark.[32] The best guess at their origin is based on their occurrence on European sites. The mulberry pipes are well known in England, first appearing c. 1650 in East Anglia, and somewhat later in the West Country.[33] The slightly smaller "Tudor rose," on the other hand, is common in Holland, where it has been assigned a beginning date of c. 1635.[34] Thus it is possible that the Dutch Tudor rose was the original form, and the larger English mulberry design was a subsequent elaboration. Whatever the relationship elsewhere, here the Tudor rose pipe was found in the D'Aulnay House midden of Pentagoet I, whereas the mulberry pipe was found in the Pentagoet III rubble.

Of the two designs, the Tudor rose seems to have been the more popular, occurring on French, English, Dutch, and Indian sites dating to the third quarter of the 17th century. Matches for the Pentagoet specimen occur at Champlain's Habitation, Pemaquid, the Clarke and Lake Company, Saint Mary's City, and Fort Orange.[35] In addition, at least four variants have been noted on Onondaga Iroquois sites, indicating that it was a popular item in the fur trade.[36] The mulberry pattern, by contrast, was apparently never a popular product for export, and occurs only rarely on colonial sites. It has been found in New York City in contexts dating between c. 1665 and c. 1685—after the Dutch had been permanently replaced by the English.[37]

Heelless Export Pipes

The term "funnel-elbow-angle" graphically describes a class of pipe which became very popular in North America after about 1660 and continued to be produced in various forms through the following century.[38] Unlike the bulbous belly bowl, this pipe is roughly funnel-shaped—tall, with little or no constriction at the rim—and heelless (Figure 6.5). Because such pipes are almost non-existent on European sites, they have been regarded as "export" products. The shape appears to be a facsimile of Indian pipes, and probably was originally intended for aboriginal trade. However European and Indian smokers seem to have used both export and belly bowl pipes with apparent indifference. European pipemakers may have favored this simplified design, finding it easier to trim and finish than the standard belly bowl.[39]

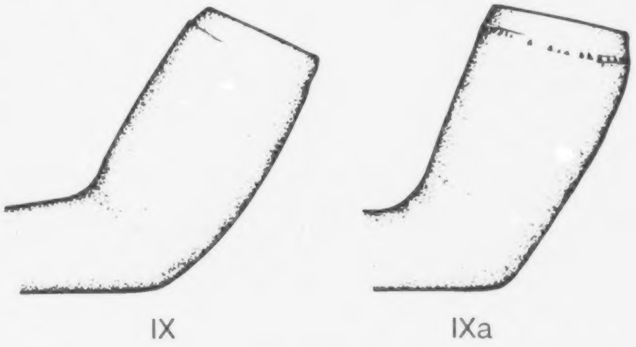

Figure 6.5 Export or funnel-elbow-angle bowl forms: Type IX, European white clay; Type IXa, American redware or "terra cotta." (actual size)

Type IX, "export". White clay export pipes are rather common at Pentagoet, numbering 19 and comprising 15% of all white clay pipes. Unlike later export bowls, which have plain rims cut parallel to the stem, the early forms at Pentagoet are all rouletted and tilt forward. Since both the Dutch and English exported models of this form, their products are best distinguished by maker's marks. The sole marked specimen at Pentagoet is stamped on the bowl with a true Tudor rose, thought to be indicative of manufacture in the West Country of England. Specimens from New York state, on the other hand, frequently bear Dutch marks at the elbow.[40] Thus it is likely that the Pentagoet specimens are of English origin; in any case, they clearly can be associated with Pentagoet III.

Redware Pipes

Fourteen, or slightly greater than 10 % of the 139 recognizable pipe bowls at Fort Pentagoet are of redware, and appear to have been manufactured locally (Appendix F). These pipes are known from virtually every English and French site in Maine occupied between c. 1660 and the beginning of the Indian Wars in 1676, although they never constitute more than about 10 % of the assemblages.[41] Such redware pipes exist in plain belly bowl and export forms and in nearly every important way mimic their European prototypes. Bore diameters generally run one size larger, however, and the pipes often are roughly finished. The red clay used in their manufacture was evidently more plastic than the stiff, white, pipe clay used in Europe, for the stems are often warped, and they have become facetted rather than round in cross-section, the result of the trimming and burnishing processes. Surfaces may also have parallel striations, as if the pipe had been wiped with a wet rag while the clay was still leather hard.

The origin of these redware pipes is obscure. Redware and "terra cotta" pipes are well known from sites in Virginia and Maryland. Some of these pipes were molded in the European fashion, and some were obviously hand potted by aboriginal craftsmen and sold to Europeans—a practice which seems to have become well established in the second quarter of the 17th century. Such pipes occasionally occur in huge concentrations on European settlements, outnumbering white clay tobacco pipes.[42] Yet few of these southern varieties match the forms at Pentagoet or other sites in Maine, which seem to run truer to the European forms.[43] As was mentioned in Chapter 4, the Maine pipes may have a closer source in the redware potteries of Charlestown, Massachusetts, and, in any case, they were probably acquired through trade with New England merchants.

Type Ia, large redware belly bowls. The five redware belly bowls from Pentagoet, are all large, plain pipes with rouletted rims, the plane of the rim canted away from the smoker. Heels are large, flat, sub-round, and cut parallel to the stem, enabling the pipe to stand upright. Other than their paste and bore diameters, therefore, they are creditable facsimiles of the popular white clay pipes of Type Ia (Figure 6.2).

Type IXa, large redware funnel-elbow-angle. The redware facsimile of the European "export" form, on the other hand, is somewhat larger than its counterparts, and the rim at front of the bowl curves inwards slightly (Figure 6.5). As with the redware belly bowls, pipe bore diameters run at least one size larger than normal, and the surfaces are roughly finished. Otherwise the pipe is similar to contemporary English and Dutch counterparts, the funnel-shaped bowl canted forward, exhibiting dentate rouletting about the rim. Nine, or 64%, of the redware bowls were of this model, suggesting that in local manufacture, which was intended exclusively for American trade, funnel-elbow-angle pipes were more popular than belly bowls.[44]

Spatial Distribution of Major Pipe Bowl Types

Examples of the four major bowl types are sufficiently numerous to allow us to search for meaningful patterns in the distribution of tobacco pipes within the fort (Figure 6.6). Since these types are generally, if not exclusively, associated with Pentagoet III, they may be assumed to reflect the smoking habits of the garrison during the final years of occupation.

As might be expected, the principal refuse areas within the fort are marked by their heterogeneity since they may incorporate refuse from separate episodes of cleaning. The dead end alley just north of Structure 2.3 contains representatives of all the major types—large, plain and PE-marked, flat-heeled belly bowls, spurred belly bowls, crusader-and-huntress relief molded bowls, and funnel-elbow-angle export pipes. The entrance to the fort, a general area of congregation lying on the fringe of refuse dumped outside the compound, shows a similar heterogeneity of pipe bowl composition. Interestingly, this dense refuse pattern also occurs in the cellar kitchen of the Dwelling (1.1) where all major forms except the spurred belly bowl are found. This accumulation, together with food waste remains and broken ceramics, indicates that during the later years of Pentagoet's occupation, trash from the occupation of the Dwelling was swept down the stairwell, and left there. This rude housekeeping suggests that the primary function of the cellar "kitchen" had been abandoned by this time.[45]

Significant segregation of pipe forms occurs only in the actual living areas themselves. These areas were evidently cleaned out on a regular, if far from fastidious basis, and their contents presumably represent the most recent pipe forms. The popular PE belly bowls are all but absent from the living quarters, suggesting that they represent an earlier shipment of pipes which had been cleaned out, perhaps late in Pentagoet II or early in Pentagoet III. The main room of the Dwelling (1.2), unlike the cellar, was relatively clean, and a mixture of three different bowl types was represented: three large Type I belly bowls and an example each of the crusader-and-huntress and export pipes. The occupants of the Officers' Quarters (2.1), by contrast, appear to have had different tastes. This is the only room in which the small, spurred belly bowls were found, discarded in the area of the hearth, together with a few export pipes. Surprisingly, the high ranking occupants of these quarters apparently preferred plain looking bowl forms to the ornate, relief molded pipes so popular with the rest of the garrison at this time. Considering that the only other concentration of these pipes is in the entranceway, directly under the site of the chapel, one is tempted to speculate that the visiting priest, Father Pierron, may have stayed in the "Officers' Quarters" shortly before the fort's demise.

Next door in the Barracks (2.2–2.3), a large single room during Pentagoet III, the pipes were almost exclusively the ornate crusader-and-huntress bowls. In sharp contrast to the Dwelling and the Officers' Quarters, the Barracks produced only one export bowl. Evidently the export pipe at Pentagoet was not intended primarily for the men; its restricted distribution among the fort's company may reflect its relatively greater value as trading stock for transactions with the Indians.

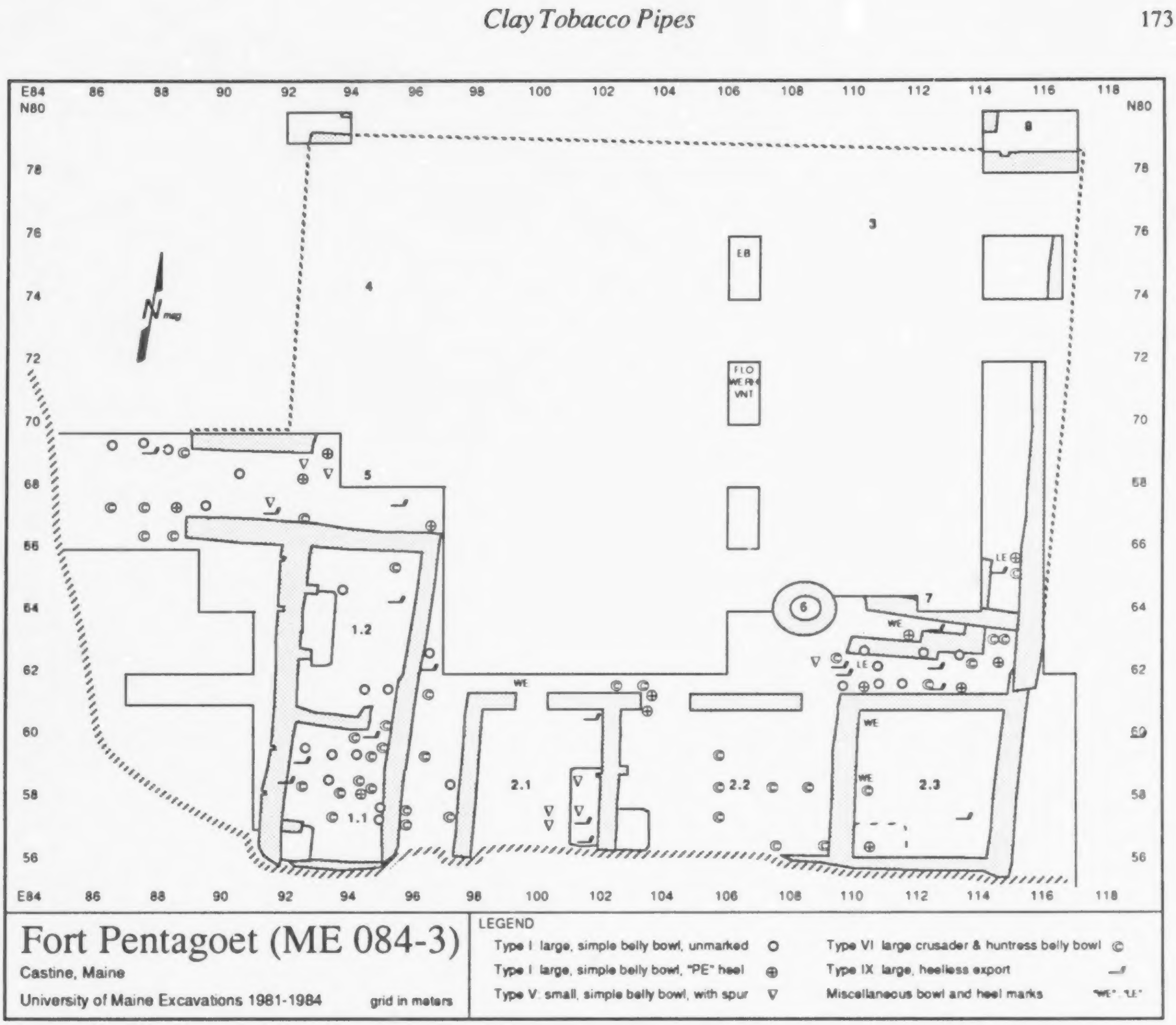
Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND
Type I large, simple belly bowl, unmarked ○
Type I large, simple belly bowl, "PE" heel ⊕
Type V small, simple belly bowl, with spur ▽
Type VI large crusader & huntress belly bowl ©
Type IX large, heelless export
Miscellaneous bowl and heel marks "WE", "LE"
E84
N80
1.1
1.2
2.1
2.2
2.3
3
4
5
6
7
8
EB
FLO WE PM VNT
N mag

Figure 6.6 Spatial distribution of major bowl types, thought to reflect pipes in use or recently discarded in 1674.

These patterns indicate that in Pentagoet III clay pipes did not exist on the site merely in proportion to their general availability, but were distributed among the garrison according to the social distinctions which they helped to reinforce. The ornate, almost gaudy, crusader-and-huntress pipes were apparently provided for the soldiers and workmen, and may have been considered rather vulgar by the fort's elite who had their own distinctive tastes, apparently preferring plain belly bowls with spurs or with flat heels. Perhaps when their personal supplies were exhausted, these ranking members may have had authority to dip into the company's stock of export pipes, originally intended for trade.

Makers' Marks and Stem Decorations

Pipes stamped with maker's marks are relatively rare at Pentagoet, numbering just 26 specimens (Table 6.1). Marks do not occur frequently on pipes from Maine sites until the

TABLE 6.1
Pipemakers' Marks

Loc.	Description	Date range	Count
heel			
	EB in beaded ring (Amsterdam)	c. 1630–1665+	1
	shore bird	(c. 1630–1665?)	1
	partial, coronet in beaded ring	(1668–1684?)	1
	unidentified, Dutch	(c. 1650–c. 1675?)	1
	Flower Hunt (Bristol)	c. 1651–1670	1
	PE (Philip Edwards, Bristol)	1649–1680	13
	LE (Llewellin Evans, Bristol)	1661–1686	2
	partial, scroll device (Bristol?)	(c. 1650–c. 1675?)	1
	Tudor rose (Dutch?)	(c. 1625–c.1650?)	1
bowl			
	Tudor rose (English)	(c. 1650–c. 1675?)	1
	WEIV (Wm. Evans, Bristol)	1660–1697	4
Total marked pipes			26

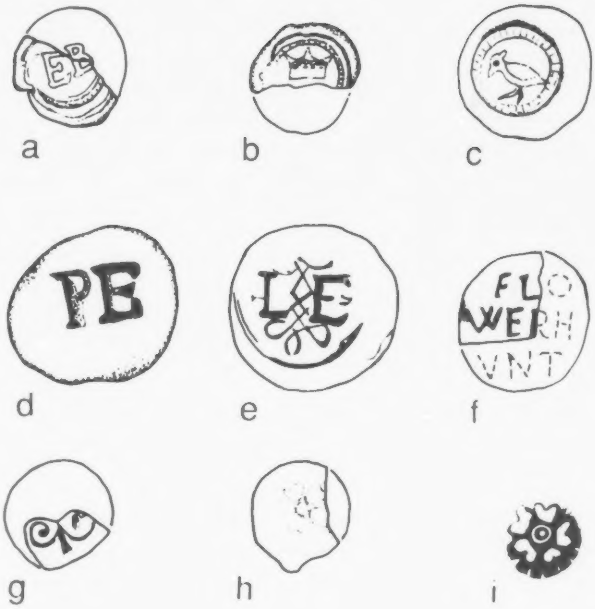

Figure 6.7 Pipe heel and bowl marks: *a*, partial EB heelmark within a beaded, circular cartouche, thought to be the mark of Edward Bird, an English emigrant to Amsterdam, at work there from c. 1630 to 1665; *b*, partial heelmark bearing a coronet on top and surrounded within a beaded, circular cartouche; *c*, faint mark of a bird, possibly a rebus for Edward Bird; *d*, heelmark of Bristol pipemaker Philip Edwards at work 1649–1680; *e*, heelmark of Bristol pipemaker LLewellin Evans at work between 1661 and 1686; *f*, partial heelmark of Bristol pipemaker Flower Hunt, c. 1651–1670; *g*, fragmentary heelmark with scroll-like device similar to that found on "EL" pipes, attributed to various members of the Lewis family of Bristol; *h*, Tudor rose heelmark, *i*, Tudor rose from bowl of export pipe. Marks *a* to *c* all occur on small, burnished belly bowls, and are thought to be Dutch. Marks *d* to *g* all represent Bristol pipemakers. Of the two Tudor roses, *h* is probably Dutch, while *i* occurs on an English pipe. (twice actual size)

last quarter of the century when they were used extensively by Bristol pipemakers.[46] Nevertheless a few distinctive examples, both English and Dutch, do occur on sites occupied during the middle quarters of the 17th century, including Pentagoet. These usually consist of two initials, often embellished with various devices.

While the number of documented 17th-century European pipemakers now numbers in the thousands, those which exported marked pipes to the New World are limited to a few dozen, and their products are becoming increasingly familiar. Unfortunately, however, there is sometimes considerable ambiguity in assigning a product to a particular pipemaker on the basis of initials alone. Because of the similarity of Dutch and English belly bowls, there is even occasionally some uncertainty as to the country of origin.

Dutch Heelmarks

This problem is readily apparent in the case of the mark "EB" set within a dotted ring, which occurs on a single example found in a disturbed context (Figure 6.7*a*.). This was one of four marks found on small, highly burnished belly bowls, all thought to be of Dutch manufacture. While several closely related varieties of the EB mark occur on English, French and Dutch sites occupied during the third quarter of the 17th century, they are especially common on Iroquois and Dutch sites in New York. Some pipologists have assigned this common pipe to various English pipemakers, including Edward Biggs of Henly, Edward Beaste of Marlborough, and Edward Battle of Bristol.[47] Recent research, however, has identified the maker as an Englishman, Edward Bird, or "Eduwaert Burt" who emigrated from Surry to Amsterdam, sometime before 1630 and died there in 1665.

What links the EB pipes to Bird is their association with a very similarly crafted mark bearing the initials "HG" topped by a crown and set within a dotted ring—a fragmentary example of which may have been found at Pentagoet (Figure 6.7*b*).[48] This is the stamp of Bird's successor, Hendrick Gerdes, who married his widow and whose pipes also occur in quantity on New York sites, frequently in association with EB pipes. These HG and EB pipes occur together on other French sites, notably Champlain's Habitation, suggesting that Gerdes continued to use both the popular EB mark along with his own.[49] Another Dutch mark which may be related to these makers is an indistinct, but recognizable, impression of a bird (Figure 6.7*c*) which appears on the heel of a small belly bowl recovered from the cellar of the Dwelling (1.1). Although similar marks from Onondaga sites have been identified as representing a deer, this pipe seems more likely to be a rebus for "Bird."[50] Finally, a pipe bearing an impression similar in size and shape and on a polished belly bowl (not shown) was found in redeposited fill above Pentagoet's rubble. Though too faint to be recognized or illustrated, it is likely that this was a Dutch mark as well.

Although the identification of these four pipes as Dutch seems now to be quite reasonable, their temporal association at Pentagoet is unclear. None were found in the middens east of Structure 7, and it seems unlikely, therefore, that they represent Pentagoet I occupations. Nevertheless, the ambiguous stratigraphic contexts in which they were found make it unclear whether they should be attributed to Pentagoet II or Pentagoet III or even the period immediately following the demolition of the fort.

English Heelmarks

Apart from these isolated Dutch examples, the majority of the marked pipes—at least 19 out of 26—are products of familiar Bristol pipemakers: the Philip Edwardses, Llewellin and William Evans, and Flower Hunt, all at work during the third quarter of the 17th century (Figure 6.7*d–f*). Thirteen, or fully half of all the marked examples are PE pipes; four, marked "WE" over "IV" in a dotted circle, were made by William Evans, while the works Llewellin Evans and Flower Hunt are represented by single examples.[51] Opposing scrolls on an isolated, fragmentary heel resemble a device used by the Lewis family of Bristol (Figure 6.7*g*).[52]

The products of the Edwards and Evans families are represented in Maine at the 17th-century village of Pemaquid and at the Clarke and Lake Company site (1654–1676).[53] By the 1670s, these marks were common on English colonial sites, although they sometimes appear on Dutch, French, and Indian sites as well.[54] Champlain's Habitation, on the other hand, is remarkably free of 17th-century Bristol pipes, indicating its relative independence from the English at this period.[55] In view of the restriction of PE pipes at Pentagoet to refuse areas, it is unclear whether these Bristol pipes were acquired by the French through trade with New Englanders during Pentagoet III or were leftovers from Pentagoet II.

Tudor Roses

The remaining two stamps (Figure 6.7*h–i*) are both "Tudor roses" and occur on Pentagoet's earliest and latest pipes—first on a heel, and later on a bowl.[56] The former, somewhat less distinct and more stylized, comes from a clear pre-Pentagoet I context beneath the floors of the Smithy (2.2), and is probably derived from the operation of the Plymouth Colony post, Penobscot, which stood on this site from 1629 to 1635. Tudor roses have often been found as heelmarks on sites of the second quarter of the 17th century; a similar heelmark from Martin's Hundred has been identified as Dutch, as has a more detailed variant from Fort La Tour.[57]

The second Tudor rose is stamped on the intact bowl of an export pipe, facing the smoker. This version of the mark is very close to a form still used to represent the West Country of England.[58] Found with three other complete or nearly complete pipes just beneath the Fort's rubble, it can be clearly dated to the very end of Pentagoet III and probably was obtained from New England.

Marked and Decorated Pipestems

Pipestems from Pentagoet are decorated by one or more of three methods: rouletting, stamping, and ornamental molding. Rouletting usually exists as a separate decoration, but also occurs together with stamps. Mold decorated pipes, however, exhibit no additional marking. Virtually all of the 24 decorated pipestems have 7/64ths in. bore diameters,[59] which would suggest a mean date of 1664 for the entire lot, according to the standard Binford formula. This collection can be dated with much greater precision, however, by comparing them to other archaeological specimens from well defined contexts. As it turns out, the decorated pipestems from Pentagoet represent both Dutch and English pipes, manufactured at various times during the 17th century.

Rouletting

The most common form of decoration at Pentagoet is rouletting, of which six different patterns have been recognized, occurring on a total of 14 specimens (Figure 6.8). Decorations of this kind occurs on Dutch and English pipestems from the second quarter of the century onwards, continuing well into the 18th century. The simplest and least diagnostic is a simple single band of milling, Type I, which occurs alone on just two specimens, one white and one red, both from Pentagoet III contexts. More commonly, however, it occurs together with various other patterns applied separately or combined on a single pattern wheel. Other design elements include chain-like motifs, oblique hachures, ovals, diamonds, Xs, and Vs, all of which are represented in Types Ia through Ie.

Duplicates of the Pentagoet patterns are most readily found on English sites which are contemporary with or slightly later than Pentagoet III. Type Ib, the motif found on nearly half of the rouletted stems, also occurs at Pemaquid and the Clarke and Lake Company in Maine, while Type Ic occurs at Clarke and Lake as well as at the Buck site (c. 1670) in Maryland.[60] At these and other sites, such as Saint-Castin's Habitation, where the later works of Bristol pipemakers Llewellin and William Evans are represented, such rouletted designs often incorporate the initials "WE," or "LE."[61] Consequently the patterns at Pentagoet are generally recognized as typical of Bristol, and indicate that the majority of rouletted stems from Pentagoet are from the West Country of England.

Earlier sites often have patterns of this general nature, but which differ from them in subtle ways. At Fort La Tour two such stems occur, but they show the more pronounced relief and sharp detail generally attributed to Dutch craftsmanship.[62] The same can be said of an example from a Mohawk site in New York, which bears a general resemblance to Type Ia.[63] As is true for Tudor rose decorations, therefore, true matches are required in order to use rouletting

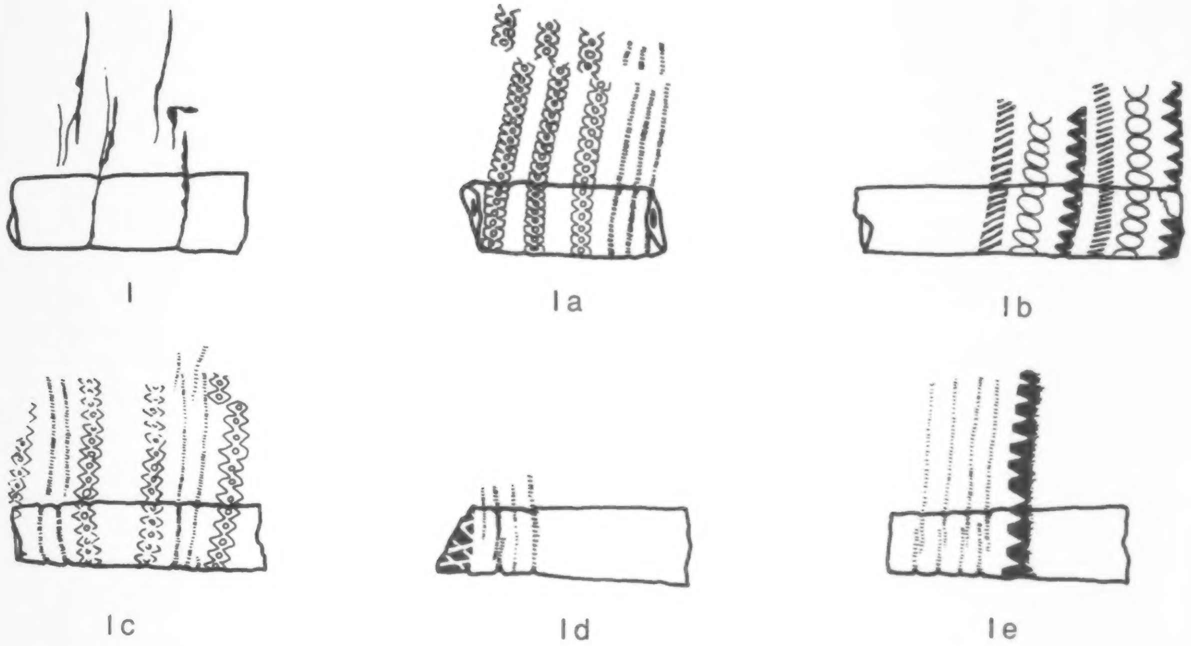

Figure 6.8 Rouletted stem decorations: Type I, simple dentate rouletting, shown here partially obliterated on a locally made redware pipe; Type Ia, chain and dentate; Type Ib, oblique hachure, oval, and V; Type Ic, open diamond chain and dentate; Type Id, X-chain and dentate; Type Ie, V-chain and dentate. (actual size)

alone for identification.

The "Four-on-Diamond Fleurs-de-Lis" Stamp.

One of the few markings which clearly can be associated with the earliest occupation, Pentagoet I, is the "four-on-diamond fleurs-de-lis" stamp. This motif is known in many forms on early colonial sites, but the most common variant is the one found at Pentagoet and assigned Type II (Figure 6.9). Several fragments bearing this mark, or portions of it, were recovered from the Pentagoet I midden which extends under the east curtain behind D'Aulnay's House. Originally counted as four separate pipes, the several fragments were eventually cross-mended to form a single, long stem. This stem bears three four-on-diamond fleurs-de-lis stamps arranged in a row along the top, separated by single bands of dentate rouletting. Matching specimens from other sites indicate that this was apparently a large belly bowl similar to Type Ia. A nearly complete example from a Mohawk burial in New York is marked on the heel with a finely detailed Dutch tulip.[64]

Like the Tudor rose, this motif was not at all restricted to the country with which it is traditionally associated. The fleur-de-lis was not an emblem reserved exclusively for French royalty, but rather it was a popular European motif used by Dutch pipemakers, and to a lesser degree by English pipemakers as well. In this case, the pipe is clearly Dutch, probably made either in Gouda or Amsterdam, and commonly exported to North American sites during the second quarter of the 17th century.[65] As we shall see from its archaeological distribution, it appears that this pipe motif was intended for general export, not just for French consumers.

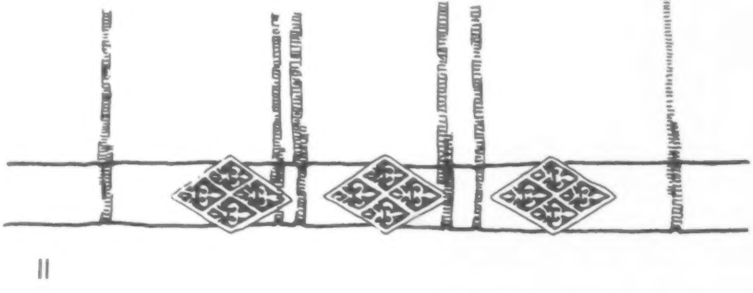

Figure 6.9 Partial detail of a pipestem bearing the four-on-diamond fleurs-de-lis stamp, Type II. The entire specimen, which is nearly complete, measures 28.6 cm long. (actual size)

Four-on-diamond fleurs-de-lis pipes have been found on a great number of colonial sites of this period, English, Dutch, and French, as well as on the habitation and burial sites of Indians with whom they traded. English sites include Martin's Hundred in Virginia, Saint Mary's City in Maryland, the "R.M." site at Plymouth Plantation, the Plymouth Colony trading post Cushnoc in Augusta, Maine and the village of Pemaquid, Maine.[66] Not surprisingly, the four-on-diamond fleurs-de-lis decoration has also been found on Dutch sites such as Fort Orange, and it is particularly numerous on the Indian sites within their sphere of influence. At least ten examples have been found on various Onondaga Iroquois and related sites in New York, where they may have figured prominently in the fur trade.[67] While this stamp has not been recognized at Champlain's Habitation, seven four-on-diamond fleurs-de-lis stems have been found at Fort La Tour, some with dentate rouletting identical to the stems at Fort Pentagoet.[68]

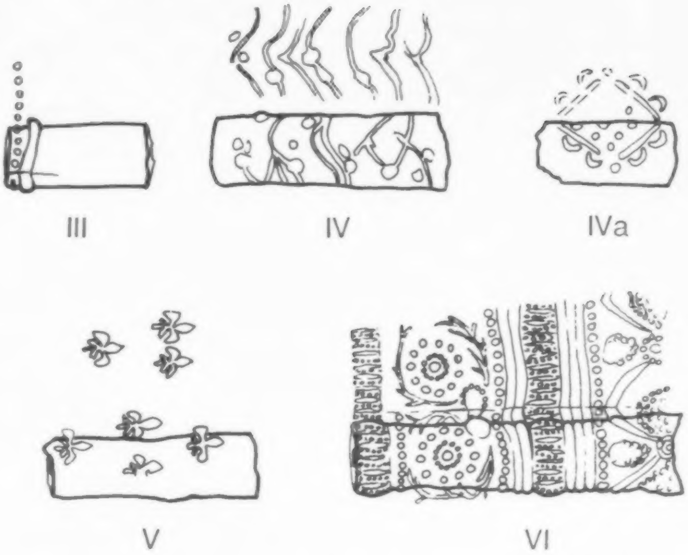

Figure 6.10 Relief-molded vine-and-leaf and stylized floral motifs: Type III, collar of dots, (partial); Type IV, stylized fruit and vine; Type IVa, crescent, line and dot; Type V, loosely spaced fleurs-de-lis (partial); Type VI, baroque mouthpiece. All appear to be of Dutch manufacture. (actual size)

Thus it appears that this Dutch product was a popular one both among Europeans and Indians in the second quarter of the 17th century, and it is not surprising to find it represented in Pentagoet I. Here, however, it was a unique find, associated with refuse from D'Aulnay's House. The four-on-diamond fleurs-de-lis pipe was surely not common at the fort, and it may have been a type reserved for the fort's elite.

Relief Molding

Molded decoration occurs on just 8 white pipe stems at Pentagoet, illustrated in Figure 6.10, Types III through VI. These all seem to be variants of stylized floral and vine motifs which were favored by 17th-century Dutch pipemakers. The ornamentation is detailed and crisp, and represents craftsmanship equivalent to that used on the finest Raleigh pipes, in contrast to the lower relief patterns which occur commonly on English pipes during the following century. Types III, IV, and IVa show fragments of designs for which we have been unable to find identical specimens elsewhere, although similar features appear on Raleigh pipes along the body of the crocodile. A pattern generally similar to Type IV was retrieved at Fort La Tour.[69] Although only Type III can be assigned unambiguously to Pentagoet I, the rest are probably of similar age.

The remaining two forms, Types V and VI, are highly ornamented, and appear only on sites occupied during the first half of the 17th century. They have not been reported on Dutch colonial or Indian sites, but were apparently common on early French and English settlements occupied during first half of the 17th century, including Champlain's Habitation, Fort La Tour, and Martin's Hundred.[70] At Pentagoet, they both were found in Pentagoet I contexts.

Type V is represented at Pentagoet by just a portion of the total design on a single specimen, showing only loosely spaced fleurs-de-lis. Two specimens from Fort La Tour show that this design segment was interspersed between ornate leaf and vine decorations occurring along the length of the stem.[71] The late Dutch pipologist F.H.W. Friederich assigned a date of 1625 to 1635 to this two-part decoration.[72] That it occurs even earlier is apparent from the discovery of two examples from Champlain's Habitation, one of which could clearly be dated to the first phase of occupation, from 1608 to 1624.[73]

Type VI, represented by two fragments, is of a highly ornamented genre called "Baroque" by Friederich and dated to c. 1640.[74] The stem is divided into repeating segments by bands of raised dots and hachures, some segments featuring two concentric circles of raised dots, while others are decorated with divers stylized floral patterns. Duplicates of the Pentagoet pipes have been found at other early sites: four fragments at Fort La Tour, one at Martin's Hundred, and one at Champlain's Habitation.[75] As this was one of the most ornate pipes ever produced, one is tempted to associate it with great prestige. While this may be so, it is also true that such heavy ornamentation was typical of the artistic excesses of the time. In any case the cost of the pipe was probably trifling.

A Cache of White and Red Clay Pipes

Fortuitously, the equipment of one Pentagoet smoker has been preserved virtually intact in a remarkable cache of four tobacco pipes—two red and two white—grouped as if they had been kept in a pouch or similar container (Plates 10 and 11). These pipes, all still usable, were found underneath the thatching and daub from some simple structure which had been built up against the East Curtain. Evidently they were protected by the thatch which in turn was sealed by the collapse of the stone curtain.

This rare grouping shows the range of pipes in use by a single smoker at the time of the fort's destruction in 1674. Note that the two European pipes had been kept by their owner even though they were in poor condition, having lost much of their stems. It is likely that they were curated because of their relative refinement over the redware products. The local redware pipes probably were regarded as second-best alternatives, necessitated by the infrequent supply of European durable goods which plagued Pentagoet. Nevertheless, even though these appear to be simple every-day models, they are more typical of pipes found within the Dwelling and the Officers' Quarters than in the Barracks.

The two white clay pipes, a Type Ia belly bowl and a Type IX export, represent forms which were just behind the crusader-and-huntress pipes in popularity during this period. Fortunately, in spite of the rarity of maker's marks on pipes at the site, both of these pipes bore identifying stamps. The belly bowl was marked with the familiar "LE" heelmark of Bristol pipemaker LLewellin Evans, at work between 1661 and 1686 (Figure 6.7*e*).[76] The export pipe, as we have noted, bore a well-defined Tudor rose, emblematic of Devonshire (Figure 6.7*i*). The two redware pipes were matching, locally-made, export forms, Type IXa, having neither markings nor decoration. One of them was found in perfect condition with a stem just 13.5 cm long, while the other was missing just the tip of the mouthpiece. From their general similarity, it appears that all four pipes within the cache, and probably most of their Pentagoet III contemporaries, were short-stemmed work-a-day pipes which could be held in the teeth, leaving the hands free.[77]

Implications

It is apparent from the foregoing discussion that the majority of diagnostic pipe bowl, heel, and stem types can be associated with phases II or III, rather than I at Pentagoet. The Pentagoet I assemblage, like that of Fort La Tour and other sites of the second quarter of the 17th century, is known primarily from a meager assemblage of diagnostic stem and heel fragments.[78] At least three factors contribute to this phenomenon. First, the earlier materials are necessarily more fragmentary that those which follow, and in many cases they may have been pulverized beyond recognition by trampling, redeposition, and other reworking of sediments. Second, the bowls of this period are often plain and lack diagnostic characteristics which would distinguish them from their successors. The few marks attributable to this period generally occur separately, on stems, and so are not represented in bowl counts.

These transformation factors notwithstanding, it is still apparent from stratigraphic contexts that the major reason for fewer tobacco pipes is that smoking was less common during the first French occupation. This observation is also borne out at Fort La Tour, a site contemporary with Pentagoet I, where the density of clay tobacco pipes is remarkably low, in spite of the higher population of the garrison. Of a total 40 bowl and heel fragments at that site, only 14 were associated with the 17th-century occupation.[79] One reason why smoking was practiced to a lesser degree during the early occupation of the fort may be that at this time tobacco was rather expensive. Smoking may not have been an all-consuming habit, to be practiced throughout the day, but was probably a leisure activity reserved for the fort's elite.

The democratization of smoking may be reflected in the evolution of pipe styles. There is some indication that over the period of occupation of the fort, pipe forms changed from models designed for leisure use or show to practical work-a-day styles. Conventional wisdom on the evolution of pipe forms maintains that both bowl size and stem length grew steadily during the 17th century from short models having stems less than 10 cm to models greater than 30 cm in length. Yet the evidence from sites like Fort La Tour and Fort Pentagoet indicates that not all pipes of the early 17th century were small.[80] Indeed, at Pentagoet, the reverse relationship appears to hold true; the only pipes which can be unambiguously assigned to Pentagoet I appear to have been long stemmed varieties, whereas Pentagoet II and III pipes were considerably shorter.

One of the most popular diagnostic pipe forms of the 2nd quarter of the 17th century was, as we have noted, the four-on-diamond fleurs-de-lis. At both Fort La Tour and Oak Hill, a Mohawk burial site in New York, it is the largest pipe fragment recovered.[81] The four-on-diamond fleurs-de-lis stem from Pentagoet (Figure 6.9), which is presumed to be complete except for a short section of mouthpiece, is fully 28.6 cm long, indicating that the original pipe was at least as long as a man's forearm! This pipe was certainly an artifact of leisure rather than a utilitarian smoking tool which a soldier or servant could hold in his teeth while working. It resembles, instead, the relatively long stemmed models often pictured in the hands of officers in 17th-century Dutch genre paintings.[82]

The outside diameter and gradual taper of the other relief molded pipestems from Pentagoet I indicate pipes which also were quite long, although perhaps not to this extreme.[83] These ornate leisure pipes were probably reserved for d'Aulnay, his second in command, the master at arms, the priest, and perhaps some specialized artisans, but probably not for ordinary servants and soldiers-employees. In any case, smoking tobacco, or "drinking" as it was then called, was not a universal habit of the garrison at this time, but rather a luxury. Moreover, since the four-on-diamond fleurs-de-lis pipe is known to have been a popular item on aboriginal sites, one must assume some of the fort's company may not have been afforded a comfort enjoyed by the Indians in this period.

If smoking was a luxury during Pentagoet I, it certainly was not during Pentagoet III. Highly ornamented relief molded pipes were no longer restricted to the privileged, but were distributed to the soldiers and workmen, and were scattered on the Barracks floor. The fort's elite, on the other hand, preferred simple plain styles, of which they may have kept their own private stock. Thus we find the few small, spurred belly bowls—pipes which were designed to be held and brandished rather than set down—confined to the Officers' Quarters.

Pipes distributed to the common soldier were practical ones. One nearly complete Type I pipe, missing only the upper portion of the bowl, was recovered from the floor of the Barracks (2.2) in a Pentagoet III context, and is representative of the large, plain belly bowls in use which were second most popular type on the site. The stem measures only 13.4 cm, virtually the same as for the cache of four contemporary pipes discussed above. These were all less than half the length of the Pentagoet I pipes, and in this respect are comparable to common briar pipes in use today. Not only could they be held in the teeth, they could be set to rest on their broad heels, some of which were specially flared for extra stability. Thus it would appear that the majority of pipestems, which seem to be distributed throughout the site, derive from these stubby, practical models. From their spatial distribution, it is apparent that smoking had become the universal habit of the entire garrison, practiced in nearly all situations, perhaps even while soldiers were on guard at the entrance of the fort.

Finally the limited variation in the pipes themselves tells of the nature of supply at the fort during the nearly forty years of its occupation. The four major pipe types, within which there is little variation, suggest that Pentagoet probably received only a few shipments of pipes over its entire history. Most of the shipments occurred after Pentagoet I when the fort required these supplies not only for trade, but to maintain the habits of its own company. Tobacco pipes, incidentally, were the only personal possessions which show any degree of uniformity at this military outpost.

The small, heterogeneous collection of pipes of Pentagoet I appears to have been predominantly Dutch in manufacture, brought to the fort as private stock, or supplied through French channels. Thereafter, of the European pipes supplied to the fort, approximately equal numbers were of Dutch and English origin. Of the latter, some may have been derived from the Temple-Crowne occupation, Pentagoet II, as most of them had been deposited in the trash heaps by the time the fort was destroyed. The general paucity of other English goods at the site, however, suggests instead that most of these Bristol pipes were acquired by the Pentagoet III garrison through trade with the New Englanders.

As was noted in Chapter 2, Grandfontaine cultivated strong ties with merchants at Pemaquid and leaders in Boston at the beginning of Pentagoet III. This surely resulted in the exchange of supplies, including tobacco and tobacco pipes, and these channels probably account for the principal accumulation of Bristol and redware pipes on the site. Only after Grandfontaine was replaced in 1673 by Chambly, who was more interested in settlement than in the fur trade, were these exchanges curtailed. The final distribution of pipes to the fort's company appears to be the crusader-and-huntress pipes found on the Barracks floor, which were probably provided through ties established with France. The absence of this pipe type in Québec, however, suggests that this was not the source. Rather it was probably a French trader, such as Henri Brunet of La Rochelle, who provided the French connection.[84]

In sum, the tobacco pipe collection is distinct from that of any of its contemporaries, French, English or Dutch. It is a reflection of Pentagoet's unique position both on the landscape and in Anglo-Acadian relations, especially during Pentagoet III. The irregularity of supply reflected in the few, homogeneous batches of pipes sent to Pentagoet points out the vulnerability of the establishment—weaknesses arising from isolation from the rest of Acadia, poor support provided by Old and New France, and the resulting sporadic dependence on the New Englanders.

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Notes to Chapter 6: Clay Tobacco Pipes

1 In addition to clay pipes, fragments from two smoker's companions—small tweezer-like devices used to grab an ember from the fire to light one's pipe—were recovered at Pentagoet. Unfortunately, they were found in disturbed contexts, and can not be positively associated with the 17th-century occupations of the site.

2 John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," in Peter J. Davey, ed. *The Archaeology of the Clay Tobacco Pipe*, vol. 2, British Archaeological Reports International Series no. 60, (Oxford, 1979), p. 63.

3 The colloquial-sounding but descriptive terms "belly bowl," and "funnel-elbow-angle" are adopted from the works of pipologist John McCashion. See John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," pp. 63–149.

4 See Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, History and Archaeology, no. 11, vols. A–D, Parks Canada, (Ottawa, 1977), p. 1678 and Figure 119.

5 David Atkinson and Adrian Oswald "London Clay Tobacco Pipes," reprinted by the Museum of London from the *Journal of the British Archaeological Association*, vol. 32, (1969), pp. 7–10 and Figure 1. F. H. W. Friederich, *Pijpelogie: Vorm, Versiering en Datering van de Hollandse Kleipijp*, Archeoligishe Werkgemeenschap voor Nederland, Monographie no. 2, (Voorburg, 1975).

6 A position held by A. Faulkner, and confirmed in discussions with Ivor Noël Hume, 1985.

7 David Atkinson and Adrian Oswald "London Clay Tobacco Pipes," Figure 1(12–13). Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, pp. 1528–1531, Figure 4a(12–13).

8 Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, pp. 1422–1423, Figures h–m.

9 Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, pp. 1420–1422. However, unmarked bowls of comparable size have been recovered at the English site of Saint Mary's City in Maryland; compare Type Ia to the pipe shown in Henry M. Miller, *A Search for the "Citty of Saint Maries,"* Saint Mary City Archaeological Series, no. 1, Saint Mary"s City Commission, (Saint Mary's City, Maryland, 1983), Figure 22*d*.

10 Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, p. 1430.

11 David Atkinson and Adrian Oswald "London Clay Tobacco Pipes," reprinted by the Museum of London from the *Journal of the British Archaeological Association*, (1969), vol. 32, pp. 7–8 and Figure 1(4).

12 Adrian Oswald, "Clay Pipes for the Archaeologist," *British Archaeological Reports*, no. 14, (Oxford, 1975), p. 115.

13 David Atkinson and Adrian Oswald "London Clay Tobacco Pipes," p. 9 and Figure 1(18).

14 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, Dossiers no. 58, Ministère des Affaires culturelles, (Québec, 1985), Figure 93(9) and Figure 94(11).

15 David Atkinson and Adrian Oswald "London Clay Tobacco Pipes," p. 9 and Figure 1(15).

16 David Atkinson and Adrian Oswald "London Clay Tobacco Pipes," p. 33. From the second quarter of the 18th century onwards, however, the English produced great quantities of relief molded pipes.

17 Adrian Oswald, *Clay Pipes for the Archaeologist*, p. 117 and Figure 22(14).

18 Meta Janowitz and Kate Morgan, pers. comms., 1981 and 1984. Paul Huey, pers. comms. 1985, 1986 and 1987. Baker is in error in placing crusader-and-huntress bowls at Fort Orange: Emerson Baker, *The Clarke and Lake Company: The Historical Archaeology of a Seventeenth-Century Maine Settlement*, Occasional Publications in Maine Archaeology, no. 4, Maine Historic Preservation Commission, (Augusta, 1985), p. 25.

19 John McCashion, pers. comm. 1982.

20 However Paul Huey, archaeologist with the New York Bureau of Historic Sites, reports other post-1664 products of Dutch manufacture in Albany including tobacco pipes, yet still no crusader-and-huntress pipes. Consequently the pipe form may not prove to be Dutch at all, but rather from some as yet unidentified source. Paul Huey, pers. comm., February 11, 1987.

21 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 158–165 and Figures 93–96.

22 Helen B. Camp, "White Clay Tobacco Pipes," *Bulletin of the Maine Archaeological Society*, (1982), vol. 22, no. 2, pp. 24, 33, no. 4. Alaric Faulkner, "Archaeology of the Cod Fishery: Damariscove Island," *Historical Archaeology*, vol. 19, no. 2, (1985), Figure 14*f*.. Emerson Baker, *The Clarke and Lake Company*, Plate 6*b*. Emerson Baker, pers. comm. December 11, 1986.

23 Indeed, although surely from a different supplier, the bowls are also found as far away as Maryland where a few fragments occur at Saint Mary's City. Henry M. Miller, *A Search for the "Citty of Saint Maries,"* pp. 69–70 and Figure 20*o*.

24 However, one example found in England, marked with the date 1683, shows that the story ultimately became confused with the legend of Jonah and the whale. Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, pp. 19–20, 1559 and Figure 11. See also David Atkinson and Adrian Oswald "London Clay Tobacco Pipes," p. 33 and Adrian Oswald, "Clay Pipes for the Archaeologist," pp. 96, 116.

25 F. H. W. Friederich, *Pijpelogie: Vorm, Versiering en datering van de Hollandse Kleipijp*, pp. 41–43, 104–105 and Figure 18 (10–24). These pipes were sometimes copied by the English, but there is no good evidence that these English products were exported. A debased "crocodile" stem still appears on one English example dated c. 1720, illustrated in Adrian Oswald, "Clay Pipes for the Archaeologist," Figure 17(1).

26 Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, p. 1559 and Figure 11, vs. Adrian Oswald, "Clay Pipes for the Archaeologist," p. 116, Figure 22 (7).

27 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, p. 158 and Figure 94, (5, 6). Neither of these pipes are duplicates of the examples from Pentagoet.

28 Paul Huey has suggested that the Pentagoet specimens are later, debased copies of the Dutch form produced by Eng-

lish pipemakers: pers. comm., February 11, 1987.

29 Emerson Baker, *The Clarke and Lake Company*, Plate 6*c*,*f*.

30 Robert L. Bradley, pers. comm. 1979.

31 For contemporary aboriginal effigy pipes of clay and stone, see Barry C. Kent, *Susquehanna's Indians*, The Pennsylvania Historical and Museum Commission, (Harrisburg, 1984), Figures 26, 28, and 29.

32 John H. McCashion, "Part 2, The Clay Tobacco Pipes of New York State, Under the Sidewalks of New York: Archaeological Investigations Near the U.S. Customs House on Manhattan Island, New York," *The New York State Archaeological Association Bulletin*, (1977), no. 71, pp. 399.

33 Adrian Oswald, "Clay Pipes for the Archaeologist," p. 96 and Plate VI(1).

34 F. H. W. Friederich, *Pijpelogie: Vorm, Versiering en Datering van de Hollandse Kleipijp*, p. 120, Figure 35(10).

35 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, p. 161 and Figure 93(11). Helen B. Camp, "White Clay Tobacco Pipes," pp. 30, 35, Figure 30. Emerson Baker, "The Clarke and Lake Company," Plate 5*b*. Henry M. Miller, *A Search for the "Citty of Saint Maries,"* Figure 23*c*. Paul Huey, pers. comm. 1986.

36 James W. Bradley and Gordon DeAngelo, "European Clay Pipe Marks from 17th Century Onondaga Iroquois Sites," *Archaeology of Eastern North America*, vol. 9, p. 121 and Figure 6*a–e*.

37 John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," p. 118 and Plate 30. See also John H. McCashion, "Part 2, The Clay Tobacco Pipes of New York State, Under the Sidewalks of New York," p. 399 and Plate 1(6).

38 Adrian Oswald, "Clay Pipes for the Archaeologist," p. 40 and Figure 4G(25–29).

39 L. T. Alexander, "Clay Pipes from the Buck Site in Maryland," in Peter J. Davey, ed. *The Archaeology of the Clay Tobacco Pipe*, vol. 2, British Archaeological Reports International Series 60, (Oxford, 1979), pp. 45 and 47 and Figure 4. For comparable aboriginal specimens, see Barry C. Kent, *Susquehanna's Indians*, Figures 25, 27, and 29.

40 John H. McCashion, "The Clay Tobacco Pipes of New York State, Part One: Caughnawaga 1667-1693," *The New York State Archaeological Association Bulletin*, (1975), no. 65, p. 343. See also John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," pp. 124, 128 and Plates 34, 37.

41 Cf. Emerson Baker, *The Clarke and Lake Company*, p. 25 and Plate 7.

42 Audrey Noel Hume, "Clay Tobacco Pipes Excavated at Martin's Hundred, Virginia, 1976–1978," in Peter J. Davey, ed. *The Archaeology of the Clay Tobacco Pipe*, vol. 2, British Archaeological Reports International Series no. 60, (Oxford, 1979), p. 16 and Figure 3(4–11). Henry M. Miller, *A Search for the "Citty of Saint Maries,"* pp. 68, 83, Tables 4 and 6, and Figure 21*A–N*.

43 Alaric Faulkner, "Identifying Clay Pipes from Maine: Some Rules of Thumb," *Bulletin of the Maine Archaeological Society*, vol. 20, no. 1, (1980), pp. 17–49.

44 Although the data are limited, the dominance of the redware export form over the redware belly bowl form seems to hold for other sites in Maine as well.

45 Considering later problems encountered in excavation, it is probable that the floor of this deep structure was perpetually wet, and had proved impractical for use either as a kitchen or a storage area.

46 Indeed these markings are especially helpful in identifying those few sites in Maine like Pemaquid and Saint-Castin's Habitation which were occupied during the Indian Wars.

47 James W. Bradley and Gordon DeAngelo, "European Clay Pipe Marks from 17th Century Onondaga Iroquois Sites," p. 111. Edward Battle of Bristol, incidentally, was apprenticed to Philip Edwards, maker of the PE pipes which constitute half the marked specimens at Pentagoet.

48 The coronet was a fairly common device, however, and the identification of this specimen as an "HG" pipe is by no means certain. A similar mark, bearing a coronet surmounting "IP", has found at Fort La Tour and many other sites of the middle quarters of the 17th century. Norman F. Barka, "Historic Sites Archaeology at Portland Point," Plate 157, left.

49 John H. McCashion, "The Clay Tobacco Pipes of New York State, Part One: Caughnawaga 1667-1693," p. 343, and John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," pp. 68–69 and Plates 17 and 38. Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, Figure 96, no. 2.

50 James W. Bradley and Gordon DeAngelo, "European Clay Pipe Marks from 17th Century Onondaga Iroquois Sites," p. 117, Figure 4f.

51 The mark "WE" over "IV" within a milled ring occurs only on isolated pipe bowl fragments at Pentagoet, and the examples are too fragmentary to illustrate. Identical, complete marks are well known, however, and have been recorded on export pipes in Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, p. 1432–1433, Figure *c*, and Helen B. Camp, "White Clay Tobacco Pipes," *Maine Archaeological Society Bulletin*, vol. 22, no. 2, (1982), pp. 22, 33, no. 10.

52 Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, p. 1458–1459, Figures *j*, *k* and *o*.

53 Helen B. Camp, "White Clay Tobacco Pipes," pp. 22–40. Emerson Baker, *The Clarke and Lake Company*, p. 23. A PE pipe has also been recorded on Damariscove Island: Alaric Faulkner, "Archaeology of the Cod Fishery: Damariscove Island," *Historical Archaeology*, vol. 19, no. 2, (1985), Figure 14*g*.

54 Pipes marked "PE" pipes do appear on New York sites of this vintage, but they are not very common. John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," p. 110, Plate 26.

55 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 165–169 and Figure 96. At Fort La Tour the marks "WE" and "LE" occur on export pipes, although these must have been deposited long after the assault which supposedly destroyed the fort in 1645: Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 432, Table 15(IV), and Plate 160.

56 Consequently precise identification of this class of sim-

ple marks requires attention to subtle variations in detail.

57 Audrey Noël Hume, "Clay Tobacco Pipes Excavated at Martin's Hundred, Virginia, 1976–1978," pp. 3–36, Figure 1(8). Norman F. Barka, "Historic Sites Archaeology at Portland Point," Plate 155, top center.

58 Indeed the specimen in question is a very good match for the Tudor rose which appears as the logo for the West Country Tourist Board.

59 One exception is a single, locally made redware stem, which, like all such pipes is of larger bore diameter than its white clay contemporaries—in this case 8/64ths in.

60 Helen B. Camp, "White Clay Tobacco Pipes," Figure 42. Emerson Baker, *The Clarke and Lake Company*, p. 23, Plate *6d,h*. L. T. Alexander, "Clay Pipes from the Buck Site in Maryland," p. 55, Figure 9(2).

61 Helen B. Camp, "White Clay Tobacco Pipes," Figures 41, 51. Another good example is L. T. Alexander, "Clay Pipes from the Buck Site in Maryland," pp. 37–62, Figure 5(3–7) and Figure 6(5–7).

62 Norman F. Barka, "Historic Sites Archaeology at Portland Point," Plate 165, bottom center and right center.

63 John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," p. 140, Plate 46.

64 Ibid., p. 84, Plate 7.

65 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 447. McCashion is more explicit, dating this form between 1635 and 1645. John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," pp. 64, 65, and 84.

66 Audrey Noël Hume, "Clay Tobacco Pipes Excavated at Martin's Hundred, Virginia," Figure 3(10) and Figure 6(2), 6(7). Henry M. Miller, *A Search for the "Citty of Saint Maries,"* Figure 23*L*. For the R.M. site, see Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 447. Leon Cranmer has provided the information regarding Cushnoc, pers. comm. July 1986. For Pemaquid, see Helen B. Camp, "White Clay Tobacco Pipes," pp. 28, 36, Figure 45.

67 Paul Huey, pers. comm. December, 1986. James W. Bradley and Gordon DeAngelo, "European Clay Pipe Marks from 17th Century Onondaga Iroquois Sites," pp. 109–133, especially p. 119 and Figure 5*d*. Also John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," p. 84, Plate 7.

68 Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 446, 447 and Plate 158. As at Pentagoet, however, these may represent only two or three pipes, as the design regularly occurs in multiples.

69 Ibid., pp. 450-451, Plate 165, lower left.

70 Considering their Dutch origin, it is surprising that they have not been reported on Dutch or Indian sites in New York.

71 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 451, Plate 165, top left and right.

72 F. H. W. Friederich, *Pijpelogie: Vorm, Versiering en Datering van de Hollandse Kleipijp*, p. 69, fourth design.

73 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 451. Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 161,2 and Figure 95(5,6).

74 F. H. W. Friederich, *Pijpelogie: Vorm, Versiering en Datering van de Hollandse Kleipijp*, pp. 40, 104 and Figure 18(7).

75 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 451, Plate 165, center row. Audrey Noël Hume, "Clay Tobacco Pipes Excavated at Martin's Hundred, Virginia, 1976–1978," Figure 2(7). Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 161–162 and Figure 95(1–3). Related designs at Champlain's Habitation appear to come from varieties of Raleigh pipes.

76 Iain C. Walker, *Clay Tobacco Pipes With Particular Reference to the Bristol Industry*, pp. 1131, 1430.

77 All such measurements were taken from the tip of the mouthpiece to the nearest edge of the heel, or, in the case of export pipes, to the point where the stem joins the bowl.

78 Cf. Audrey Noël Hume, "Clay Tobacco Pipes Excavated at Martin's Hundred, Virginia, 1976–1978," pp. 3–36.

79 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 424, Figure 79, and Plates 153 and 154.

80 Ibid., p. 447.

81 Ibid., p. 446. John H. McCashion, "A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites," pp. 64, 84.

82 For numerous examples, see the section titled "La Vie des Soldats" in Christopher Brown, *La Peinture de Genre Hollandaise au XVIIe Siècle: Images d'un monde révolu* (a French translation from the English original), DeBussy-Vilo, (Paris, 1984), pp. 106–111. Long stemmed pipes of leisure were not restricted to officers, merchants, and nobility, however, as is clear from Arent Diepraerm's *Paysan à la pipe*, p. 46. The distinction is one of context, not necessarily class.

83 Curiously, Barka has estimated the maximum length of the "baroque" pipes at Fort La Tour at a miniscule 8 cm—far too short for any known pipes on North American sites of this period. In so doing, he has probably mistaken one of the nodes between segments for the point at which the stem meets the bowl. Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 451.

84 Louis-André Vigneras, "Letters of an Acadian Trader, 1674–1676," *NEQ*, (1940), pp. 98–110. Indeed, if it was Brunet who provided the crusader-and-huntress pipes to Pentagoet, it would also explain their presence on other sites in Maine, where he traded regularly.

Chapter 7

Ceramics

The ceramic assemblage at Fort Pentagoet consists of more than 3178 sherds, of which at least 2477 or 78% are from 17th-century contexts. This makes it the largest collection from a 17th-century French colonial settlement yet reported in North America. The majority of these ceramics can be assigned to the two French occupations Pentagoet I (1635–1654) or Pentagoet III (1670–1674). While there are some vessels from the earlier Plymouth Colony trading post (1629–1635), there are few if any ceramics attributable to Pentagoet II (1654–1670), the intermediate period of English control, because the fort was apparently all but abandoned. The remaining 22% of the ceramics can be attributed to the Staples-Gray homestead (c. 1760–c. 1765) and subsequent occupations.[1] Full descriptions of all 17th-century types, along with a summary of 18th-century ceramic counts, are given in Appendix F.

A concerted effort has been made over the past six years to reassemble as many vessels as possible in the Pentagoet collection—to establish crossmends between artifacts in different contexts, to reconstruct vessel forms in as much detail as possible, and to arrive at reliable figures for the minimum number of vessels in each classification. For earlier periods, the quality of the archaeological record is quite variable, for some of the ceramics have been highly fragmented and widely dispersed by subsequent settlement. The ceramics of Penobscot, the Plymouth Colony trading post, were often found in middens and fill from the later construction of the earthworks; naturally these remains generated few crossmends and few complete vessel reconstructions. Many of the Pentagoet I remains were much better preserved, an extensive midden from this period was protected by the later construction of the East Curtain directly above it. The task of crossmending was relatively easy for Pentagoet III ceramics, for they had been sealed in place beneath tons of slate rubble when the fort was demolished by the Dutch in 1674. Many specimens were found shattered in place where they had been abandoned, or in refuse dumps which had not been extensively reworked.

The hundreds of hours spent in mending potsherds resulted in a useful estimate of the minimum number of vessels represented. This approach had clear advantages over quantifying pottery by sherd count, as is often necessary in large collections for which exhaustive mending of specimens is impractical. The benefits are obvious, for example, in assessing the contribution of gravel tempered vessels from North Devon to the assemblage as a whole. The 122 fragments differ widely in glaze and body color, and make up fully 5% of the collection by sherd count, implying that Pentagoet acquired these items from the English in significant quantity. After months of determined crossmending, however, it has become clear that these sherds represent just one, very large storage jar—the largest from the site. By vessel count, this ware makes up only 0.9% of the collection.[2]

There are, of course, many inherent biases in arriving at a minimum count of vessels in a collection of any size. Some wares and vessel forms can easily be recognized from body sherds, while others may require rim sherds, handles, and basal fragments in unambiguous combination in order to be properly identified.[3] Nevertheless it has been possible to reduce the more than 2477 sherds of 17th-century date to just 108 vessels. The mending of the Pentagoet ceramics has progressed to such a degree that the minimum figure for each ceramic type can be taken as a good approximation of the actual number of vessels represented in the collection (Table 7.1). Common buff bodied earthenwares comprise the majority of the collection, followed in descending order by common redwares, fine tin glazed earthenwares, and stonewares (Figure 7.1).

In their role in alimentation, these ceramics are important indicators of daily life at the fort. As they are all imported items, however, they reveal more about the networks of supply than they do about the adaptation of Pentagoet's garrison to local conditions. Most significantly, they provided a good basis for comparing Pentagoet's supply sources to those of other sites in Acadia and New France. Chief among these are Fort La Tour (1631–1645) in Saint John New Brunswick, and the Nicolas Denys Trading Post (c. 1650–1669) at St. Peter's on Cape Breton, Nova Scotia—major outposts operated by d'Aulnay's competitors. The collection

TABLE 7.1
Pentagoet Ceramics: Minimum Count of 17th Century Vessels

Ware	Class/Type	Form	Description and basis for count	Count*	Sum
Coarse earthenwares					
Buff bodied					
	Green glazed				
	GG2	hollow	Large storage pot with single strap handle	1	
			Large storage pot with double strap handle	1	
			Large pouring pot with double strap handle	1	
			Similar large pots (handle sets)	7	
			Other pot forms (sets of atypical handles)	4	
			Pots with incised or incuse decoration	(4)	
			Pots (base forms)	(7)	
			Pots (rim forms)	(4)	
			Pots with thumb impressed rims	(2)	14
	GG2a	hollow	Small pitcher	1	
			Pitcher (rim)	1	
			Jug (spout)	1	
			Flat based jars or pots	3	6
	GG3	hollow	Small apothecary or preserve jars	7	
			Shallow bowl, thumbed cordon below rim	1	
			Unidentified form (basal fragment)	(1)	
			Fine pitcher (3-ply twisted handle)	1	9
	GG3a	hollow	Chafing dish (rim loop)	1	1
	GG3b	hollow	Globose pot with yellow glazed interior	1	1
	Orange glazed				
	OG1	hollow	Globose pot	1	1
	Yellow glazed				
	YG1	hollow	Round double-handled cooking pots	14	
			Small flat based jars	2	
			Medium jar	1	
			Large pitcher	1	
		flat	Plate rim	1	19
	Polychrome				
	PC1 (Saintonge)	hollow	Globose mugs or single-handled pots	2	2
	PC2 (Saintonge)	hollow	Chafing dish	2	
			Sauce or incense boat (rim)	1	
			Costrel (spout)	1	4
Redware	Plain				
	RW1 (mica temp.)	hollow	Unidentified globose forms	2	
			Pouring pot (pouring rim)	1	3
	RW2	hollow	Unidentified forms (color, thickness, etc.)	4	4
	Lead glazed				
	RW3 (N. Devon)	hollow	Large gravel tempered storage jar	1	1
	RW4 (N. Devon)	hollow	Baluster jars, gravel free	3	
			Other globose forms (fabric/glaze)	12	15
	RW5	hollow	Unidentified globose vessel	1	1
	RW6	hollow	Large open storage jars	2	2

TABLE 7.1 *(continued)*

Ware	Class/Type	Form	Description and basis for count	Count*	Sum
Fine Earthenwares					
Tin glazed	Delft				
	TG1 (plain white)	hollow	Drug pot, albarello form	1	
			Ointment pot (base)	1	
			Small cup (rim)	1	
			Small bowl (base)	1	4
	TG2 (bl.-on-wh.)	hollow	Drug pot, albarello form	1	
		flat	Plates (motif)	3	4
	Pink-bodied faience				
	TG3 (plain white)	hollow	Small cup or bowl (rim)	1	
			Sauce bowl (zöomorphic handle)	1	
			Cup (handle)	1	
			Tureen lid (handle)	1	
	(brownish glaze)	flat	Soup plate (rim)	1	5
	TG3a (plain green)	?	Unidentified	1	1
	TG4 (polychrome)	hollow	Saucers or porringers	2	2
Stonewares					
Unglazed	Gray bodied				
	SW1	hollow	Unidentified (rims)	2	2
Saltglazed	Buff bodied				
	SW2 (Rhenish-like)	hollow	Globose tankard with sprig molding	1	1
	Gray bodied				
	SW3 (Frechen)	hollow	Bartmann jugs (medallions, paste, etc.)	6	6
			Total		108

* Identifications not adding to the minimum number of vessels are shown in parentheses.

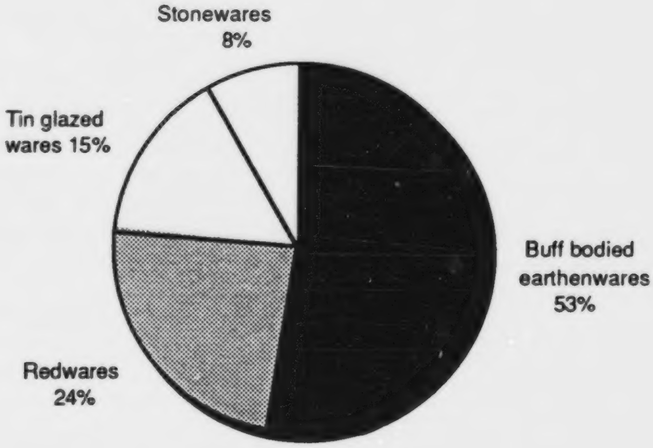


Figure 7.1 Relative proportions of major 17th century wares in the Pentagoet ceramic assemblage.

also offers a useful comparison to the ceramics from the early phases of occupation of Champlain's Habitation in Québec. Beyond this regional study, the analysis of these materials contributes to the understanding of European ceramic production and the trade networks in effect during the middle quarters of the 17th century.

Buff Bodied Earthenwares

The predominance of buff bodied earthenwares at Pentagoet easily distinguishes this French site from its English contemporaries, where redwares are far more common. Though generally simple in form and decoration, nearly all of the buff ceramics represent regional types from western and southwestern France. These wares are formed from a white-firing clay having no obvious temper, and showing occasional, small inclusions of red ochre. Originating from late medieval traditions common to France and Spain, the forms differ markedly from the products of other regions, especially northwestern Europe. Closed storage vessels predominate at Pentagoet—all well turned and quite thin. These are glazed partially or completely, either with a clear, pale yellow lead glaze or with a copper green glaze (Plate 12).[4] Considerably rarer are the tablewares, which boast polychrome painted decoration and large relief molded ornamentation, and are true products of the Renaissance.

Most of these buff bodied wares appear to have come from the Saintonge region: the area within the Department of Charente-Maritime in the vicinity of the town of Saintes. Indeed, certain pieces can be shown to be the products of a group of potteries in villages to the northeast of Saintes such as La Chapelle-des-Pots or Ecoyeux.[5] These ceramics were shipped down the Charente River to La Rochelle—the port city which supplied Pentagoet both in its initial and final occupations.

Much has been written over the past 20 years about the pottery industry in this area, but while its later exports to the French colonies of North America are fairly well documented, its 17th-century exports are just now beginning to be understood.[6] It is an important period, for during the second half of the 17th century there were some dramatic changes in the forms and distribution of Saintonge pottery which reflected a rapidly changing world. Major religious and political upheavals in France, economic warfare with the English, and the opening of new markets in North America required a complete re-organization of the industry. The Pentagoet collection helps to document this transition.

The Saintonge Potteries

The archaeology of the Saintonge potteries has been carefully studied by Jean Chapelot, and his pioneering scholarship forms a basis for understanding the occurrence of these ceramics on North American sites.[7] The Saintonge region has a long history of pottery manufacture, and by the late middle ages its products were regularly exported to northern Europe, particularly to the British Isles. Ships navigated the Charente River as far as Saintes, taking on the principal product, Saintonge wine, which ranked among the finest of Western Europe. With this product went the jugs and pitchers necessary to transport the wine from the cellar barrel or the innkeeper's vat to the table.[8] After a modest period of export business from c. 1250 to c. 1350, the potteries slipped into oblivion for nearly a century and a half—a hiatus reflecting the economic crises of the 14th century occasioned by the Black Death. Equally important was the Hundred Years War, which pitted France against its chief customer and frequently drew its battle lines within the Saintonge.[9]

It is the rejuvenation of the industry in the beginning of the 16th century which is of particular relevance to Pentagoet, as it was occasioned by the growth of La Rochelle as a port. La Rochelle, the chief source of Pentagoet's supplies, owed its growth to the development of the seasonal cod fisheries off the coast of Newfoundland. At this time the ports of western France also carried on a brisk trade with the West Country of England exporting bay salt, a critical ingredient in curing the codfish catch.[10]

La Rochelle suffered considerably as a result the religious conflicts of the 17th century, beginning as early as 1620. The persecution of Protestants did not become systematic until 1680, however, and during the periods that Pentagoet and Fort La Tour were being supplied from this source, the effects of this conflict were not extreme. But by 1685, when the Edict of Nantes was revoked, La Rochelle had lost fully a third of its inhabitants, an economic blow which must have had a severe impact on the manufacture of Saintonge exports.[11]

The post-medieval products of the Saintonge were redistributed wherever the merchants of La Rochelle traded. While most of this trade was at first with the British Isles and Flanders, the provisioning of settlements in North America became of increasing importance. Prior to about 1650, only the finest ceramics were regular export products, or so it would seem from the archaeological remains which have been recognized in northwest Europe. As was the case in the later Middle Ages, these ceramics were made from a dense, white firing clay, often covered with a green glaze.

The newest fashion of the 16th century, however, was a rather gaudy polychrome ware sporting relief molded appliqué decorations. This Renaissance art style spread though the family-owned potteries of rural Saintonge under the influence of such 16th-century potters as Bernard Palissy, originally a resident Saintes, who considered himself to be an "artist in earth."[12] He, like some of his contemporaries, was influenced by current fashions in luxury wares, particularly the products of the goldsmiths. Eventually he established potteries in Paris and his works became world renowned. Subsequently the region around La Chapelle-des-Pots became proficient in turning out debased versions of Palissy ware for popular consumption. These often took the form of gaudy chafing dishes ornamented with human masks, and accented with daubs of blue, brown, green, and yellow paint, and covered with a clear glaze. Costrels and platters were also fashionable and were frequently ornamented in the same style. Surprisingly, these ornamental wares graced not only the tables of northern Europe, but also those of frontier nobles and gentlemen in Acadia and New France, such as Champlain, Nicolas Denys, Charles de la Tour, and Charles d'Aulnay.

But 1650 marks a turning point in export production, apparently occasioned by both political and economic considerations. That year marked the beginning of a series of import restrictions imposed by Great Britain—the Navigation Acts—which were countered by similar measures in France. From that time until the treaty of 1786, France and England strictly forbade the importation of each other's ceramic products. In that interval the British ceramics industry blossomed, particularly in Staffordshire, replacing small family run businesses employing two or three helpers with large, efficient factories which mass-produced huge quantities of fine products for export.[13] Ultimately the British ceramics industry developed fine earthenwares, stonewares, and porcelains which by the middle of the 18th century came to dominate the European and American markets. These products were not only superior to those of rural Saintonge, they were often less expensive as well.

Although the manufacture of fine polychrome export products apparently ceased in the middle of the 17th century, the Saintonge pottery did not collapse entirely. By the middle of the 18th century it is clear that the industry was thriving once again, having found new markets for a new set of ceramic forms. The change in products and their distribution was considerable, and is well documented in 18th-century sites in the New World. Instead of producing elegant tableware for European tastes, the new industry concentrated on making utilitarian earthenwares suitable for the growing agricultural colonies in French North America. Following a general trend in post-medieval pottery, the products included a greater percentage of open forms: bowls, milk pans and platters.[14] These were much thicker and heavier than the export products produced a century earlier. Another new form, apparently popular in Spain as well as in the Saintonge, was the round bottomed, double handled cooking pot or "marmite."[15]

Although white firing clays continued to be used, most new forms were made of clays which fired from pink to brick red, depending on the amount of iron impurities in the lower grade paste. The wares produced were generally softer, and less durable than their buff bodied antecedents and so were produced with thicker walls.[16] To hide the red body and achieve the white surface which had become traditional in Saintonge, many products were covered with a white slip, probably made from the same white firing clays used in previous centuries. The slip made better use of the relatively rarer white firing clays, and probably resulted from an increase in the number of potteries competing for raw materials in the Saintonge. Typically it served as background for the copper glaze, effecting the same bright green color which characterized earlier products. A popular decoration involving this "slipground" technique was a repetitive circle-of-dots motif painted on the interior of large bowls in red or brownish yellow slip over the green glazed background.[17]

These and related Saintonge products are known from a wide variety of later sites in New France. In the the southeastern United States, they include Dauphin Island in Mobile, Alabama, and the Tunica Indian burials, popularly known for the "Tunica Treasure," in Angola, Louisiana.[18] Canadian sites include the small Acadian hamlet at Belleisle, Nova Scotia; the fortified French town of Louisbourg on Cape Breton Island, Nova Scotia; the shipwreck of the *Machault*, which went down in 1760 in battle of the Restigouche; and the privies of the Estèbe and Boisseau families at the Place Royale in Québec.[19] Significantly, these wares also occur at Champlain's Habitation in contexts going back as far as c. 1675, just after the destruction of Pentagoet.[20]

The ceramics of Pentagoet I include the fine export products popular during the first half of the century, while those from Pentagoet III represent a period when Saintonge production was at an ebb, prior to the development of the coarses earthenwares which became popular in the 18th century. Yet there seems to be no evidence for a drop in popularity of Saintonge wares at the site. Clearly the pattern of consumption at Pentagoet and other 17th-century French colonial outposts was different that of European customers for the same Saintonge ceramics. The North American market at this time was quite small; in Acadia, the population probably never numbered more than 500 or 600 settlers in the 17th century, and it must have had little influence on Saintonge production. The early French settlements were not so much active participants in the exchange and redistribution of products in open commerce as they were recipients of provisions packaged for them by suppliers abroad. These provisions came infrequently, and generally from a sole source.

The supplies for Pentagoet were assembled in La Rochelle, and so reflect heavily the products available in that port, whether they were specifically designed for export, or were merely the most convenient, local, everyday items. Had the source of supply been a different French port, the common ceramics might well have been quite different as well; the products of regional potteries of the 17th century differed nearly as much between ports within the same country as they did between countries. Ste. Croix, the colony established by Champlain and De Monts in Maine during the winter of 1604–1605, was provisioned from Honfleur near Le Havre in Normandy and was supplied principally with local Norman stonewares—ceramics which differ fundamentally in form and technology from the earthenwares of

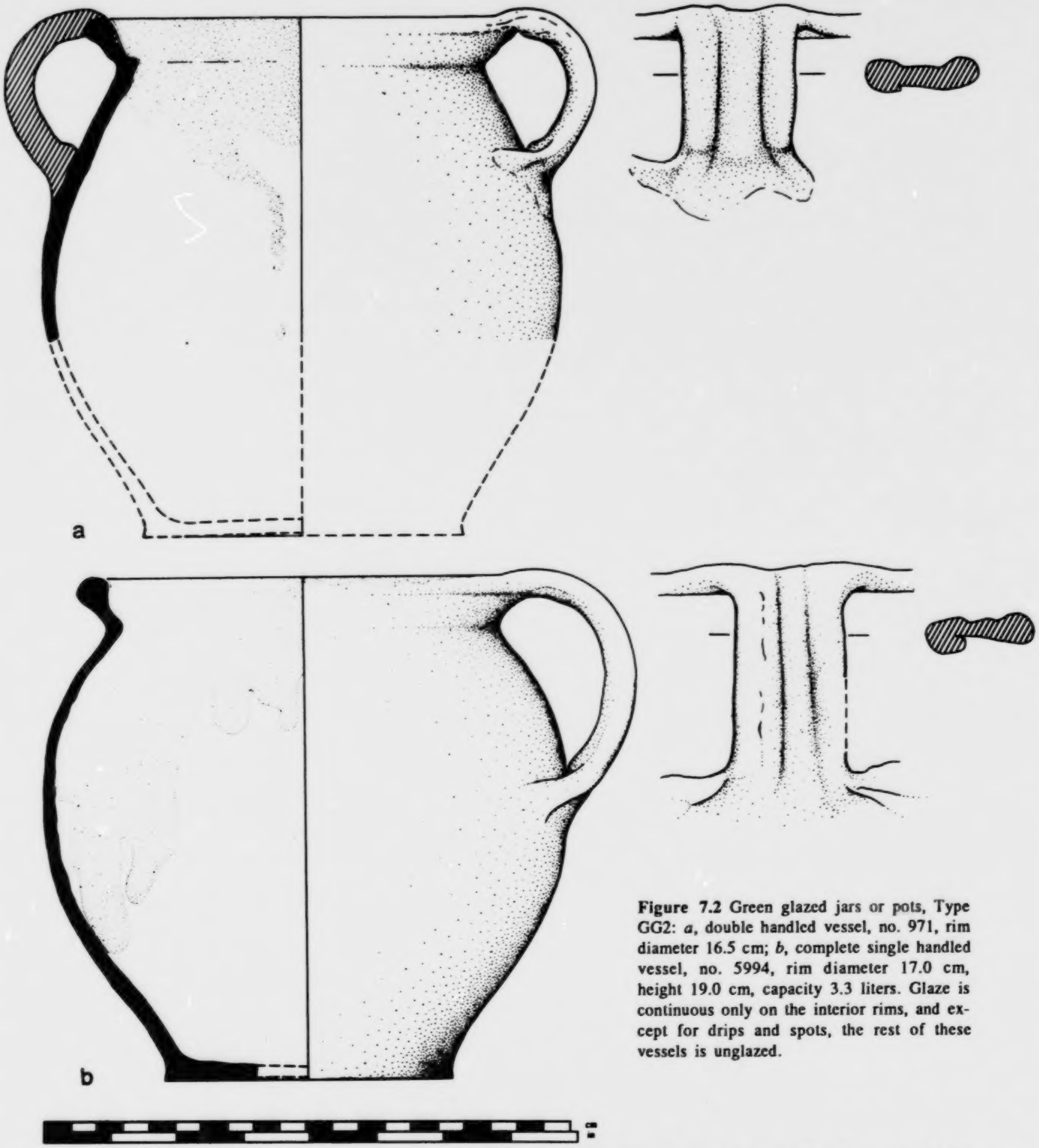


Figure 7.2 Green glazed jars or pots, Type GG2: *a*, double handled vessel, no. 971, rim diameter 16.5 cm; *b*, complete single handled vessel, no. 5994, rim diameter 17.0 cm, height 19.0 cm, capacity 3.3 liters. Glaze is continuous only on the interior rims, and except for drips and spots, the rest of these vessels is unglazed.

Saintonge.[21] Fort La Tour, on the other hand, was supplied in much the same way as Pentagoet, by a merchant agent working for La Tour out of La Rochelle who attempted to interpret the requirements of the settlement. As a result the ceramics at these two sites are strikingly similar, and are based upon Saintonge products.

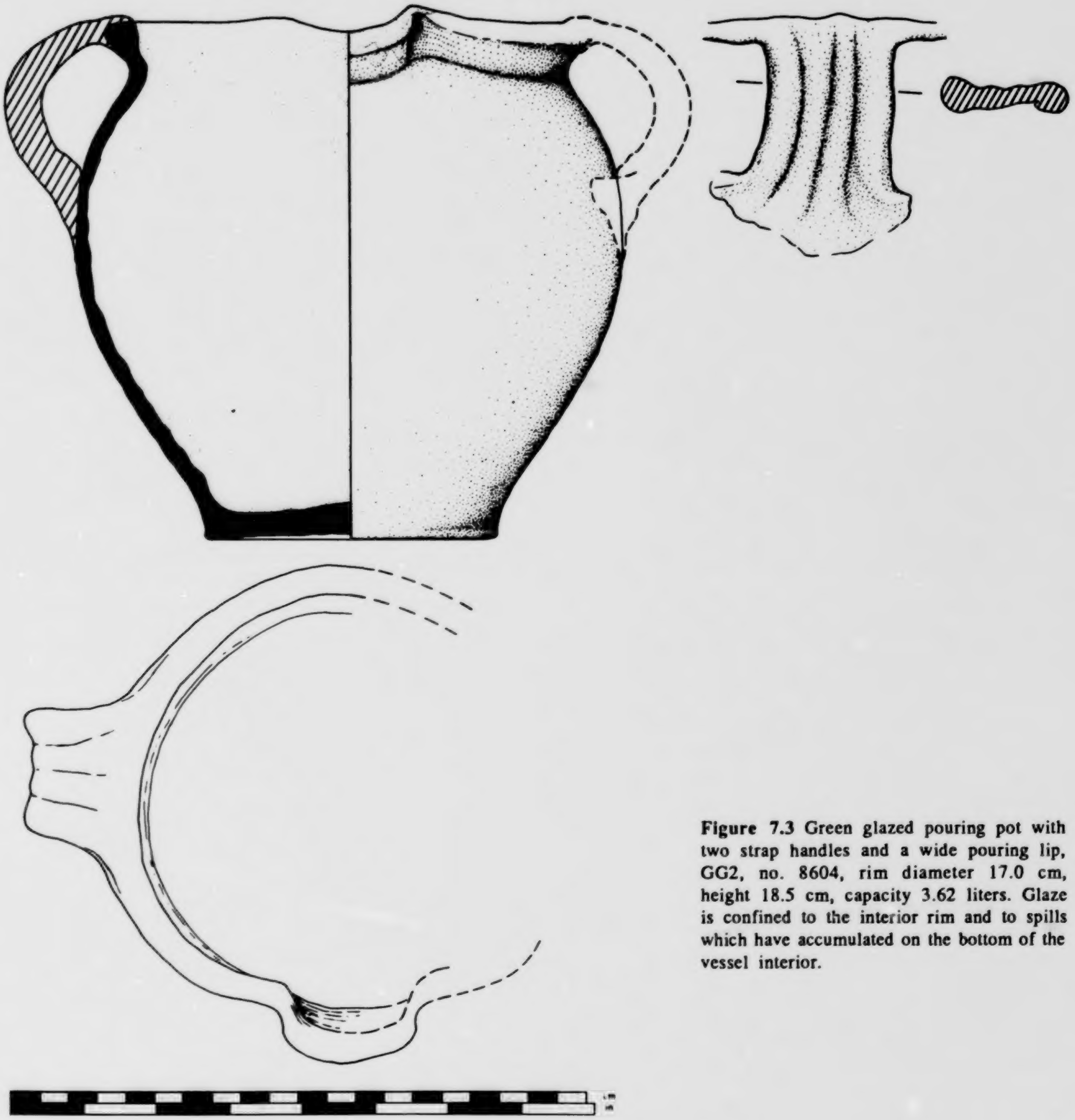


Figure 7.3 Green glazed pouring pot with two strap handles and a wide pouring lip, GG2, no. 8604, rim diameter 17.0 cm, height 18.5 cm, capacity 3.62 liters. Glaze is confined to the interior rim and to spills which have accumulated on the bottom of the vessel interior.

Green Glazed Earthenwares

Although the designation GG1 was reserved in advance for white slipped, green glazed Saintonge pottery known from virtually all the later French sites, no examples were found at Pentagoet. Instead Pentagoet's dominant earthenwares were glazed directly on the buff body, without any slip. These types are designated GG2, GG2a, GG3, GG3a and GG3b, and range from very simple utilitarian storage forms, only partially glazed, to well formed tablewares. The common utilitarian forms, Types GG2 and GG2a, are only partially glazed, generally on all or part of the interior surface, and are comprised principally of storage vessels. Types GG3, GG3a, and GG3b are well-turned tableware and apothecary forms, covered inside and out with a uniform, bright, copper green glaze, sometimes in combination with other decorative elements.

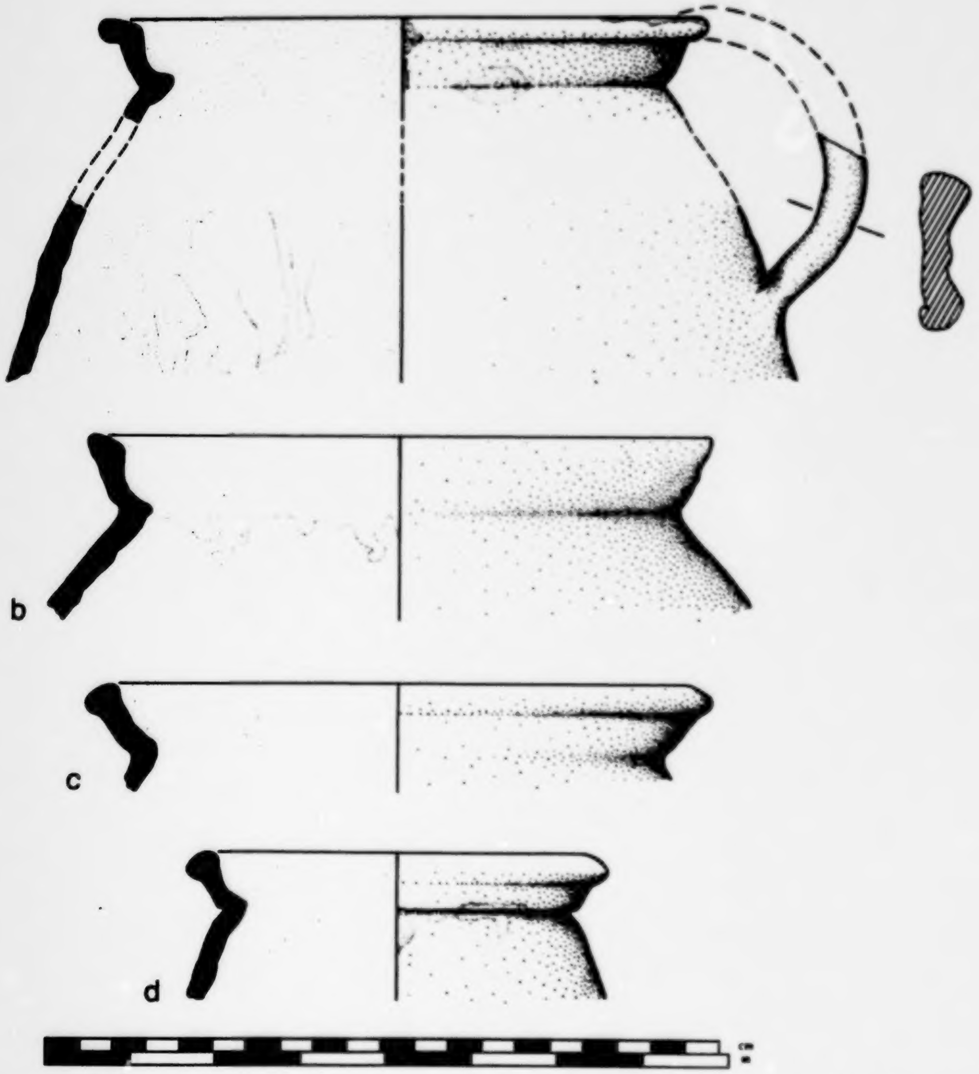


Figure 7.4 Everted rim forms of GG2 jars and pots, all glazed on the interior of the rim only: *a*, no. 6142, rim diameter 18 cm; *b*, no. 8907, rim diameter 18.5 cm; *c*, no. 6662, rim diameter 18.5 cm; (d) no. 5371, rim diameter 12.5 cm.

GG2. Of the green glazed French pottery, Type GG2 is the most common, as well as the simplest. It is found in both Pentagoet I and Pentagoet III, although the most complete specimens come from the later period. Jars and pouring pots with one or two strap handles are typical, the most popular size having a capacity of approximately three and one-half liters (Figures 7.2 and 7.3, and Plate 12 left). These forms have a long history in the medieval traditions of France and Spain, and although the fabric and glaze are different, the shapes are very similar to those found at the Basque Whaling station at Red Bay in Labrador, occupied nearly a century before Pentagoet.[22]

Although this type is carelessly glazed and makes no pretense of being decorative, the vessels all have thin walls and uniform rims. Except for accidental drips and spatters, glaze is applied only on the vessel interior. On specimens from Pentagoet I the glaze completely covers the interior, but the Pentagoet III examples are usually glazed only on the interior rim (Figures 7.2–7.4). Unlike the lead glaze on most English ceramics, the principal function of the glaze in this case was not to seal the porous vessel interiors, but rather to provide a a non-stick coating for the rims of storage

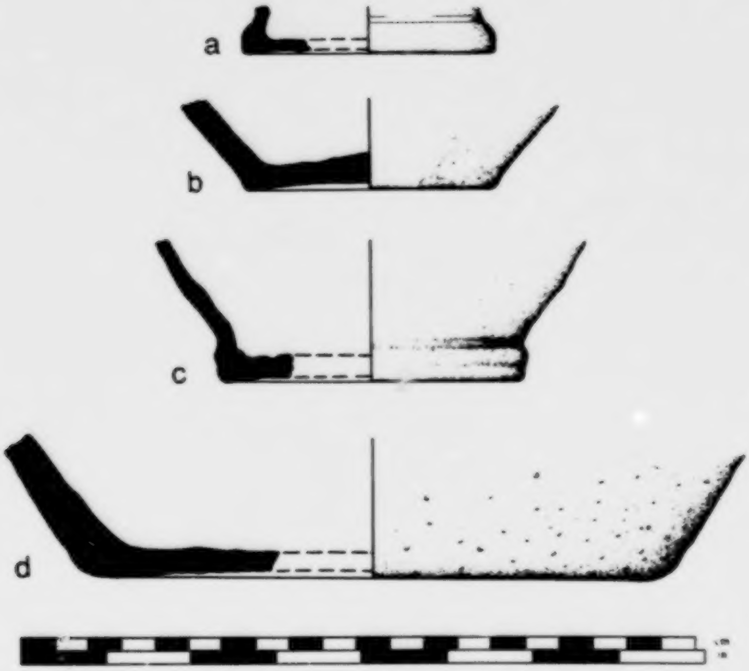


Figure 7.5 Base forms of GG2 pots and small jars: *a*, no. 6291; *b*, no. 7449; *c*, no. 829; *d*, no. 4254. All are glazed on the interior.

jars. The jar could be sealed tightly, but the closure could easily be removed and resealed again as needed. No corresponding ceramic lids were found at Pentagoet, and it is possible that these jars were originally sealed with wood, wax, or some other perishable material. Thus the GG2 vessels were well designed for transporting and preserving their original contents, but were poorly designed for cleaning and reuse.

There is some question about the manner of application of the copper and lead glaze. Although the drips down the interior and exterior suggest that it was applied in a liquid form, Chapelot has suggested an alternative method.[23] A wheat paste may have been applied to the rim, and powdered glaze sprinkled over this surface, adhering to the paste, but also accumulating on other exposed surfaces, particularly in the bottom of the vessel (Figure 7.5). Whatever the application method, the glaze is usually quite inhomogeneous, showing the mottling effects of dense particles of copper oxide as well as stains and pits formed around particles of iron oxide impurities. This inhomogeneity and incomplete fusion of the glaze was evidently caused by firing at temperatures lower than was normal for the production of the finer Saintonge export tableware.

Nearly all of the GG2 vessels have broad strap handles, rilled vertically along the back. These were apparently formed in a flat, open mold, and hastily attached to the everted rim and body of the vessel in a fairly tight loop. Often the handles are considerably distorted, and the sides were folded inwards (Figure 7.6). Rilled strap handles are a traditional European form of medieval origin, and are known in a number of other post-medieval wares, including earthenwares from Spain and stonewares from lower Normandy.[24]

Specific matches for Pentagoet's GG2 storage vessels and pouring pots occur in collections from sites in France, and have been attributed to the Saintonge potteries. The single handled jar shown in Figure 7.2*b*, for example, is apparently identical to a complete specimen recovered from underwater excavations at Port Berteau, located downstream from Saintes on the Charente River, along the route of exportation from Saintonge.[25] Attributed to the 15th or 16th century at Port Berteau, it was the most common storage form at Pentagoet from 1670 to 1674. Two handled versions of these GG2 storage jars also occur at Fort La Tour (1631-1645), but in somewhat smaller sizes.[26] Thus, while it was once thought that these simple products were little exported beyond the local area of the Saintonge, they now appear to have been commonplace in the provisions sent to Acadia from La Rochelle in the 17th century.[27]

Also found at Port Berteau, and at St. Malo as well, were matches for the sole decorative form which occurs with any regularity on GG2 jars in Acadia, an imitation in clay of carrying straps. This commonplace decoration derives from a widespread medieval tradition, and was used on various French and Spanish wares well into the 18th century.[28] Narrow bands of clay were applied to the vessel bodies, extending vertically or at a slightly oblique angle from the base up

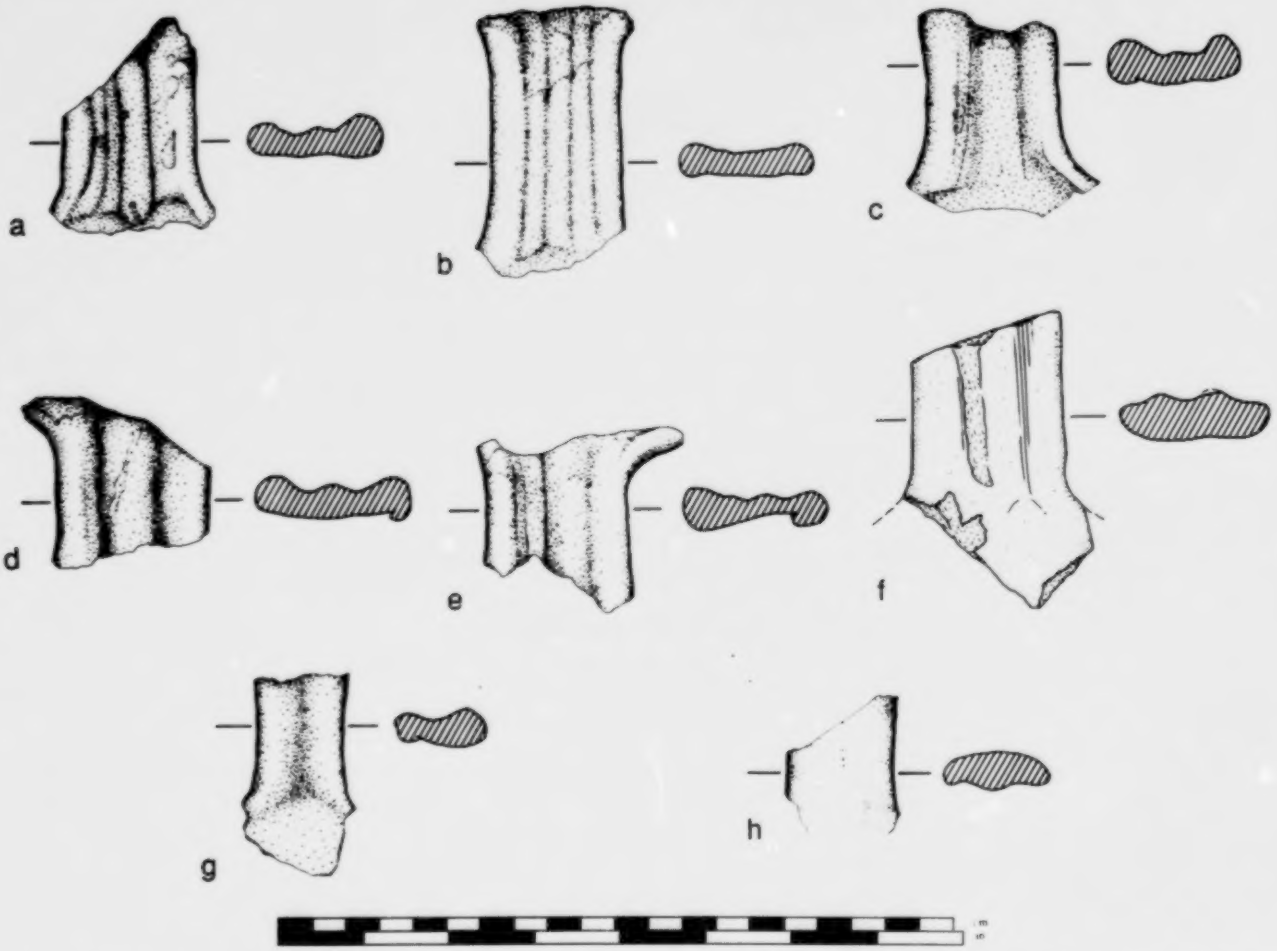


Figure 7.6 Strap handle forms associated with GG2 jars. Typical wide, rilled forms: *a*, no. 3680; *b*, no. 6929; *c*, no. 5545; *d*, no. 5181; *e*, no. 2169; *f*, no. 4240. Rarer narrow forms: *g*, no. 3873; *h*, no. 3829.

to the everted rim. These bands were then rouletted with a pattern of rectangles, or less frequently diamonds, in simulation of rope or basketry straps (Figure 7.7*a–b*).[29] This is also the principal form of ornament found on GG2 ceramics at Fort La Tour, and at Fort Saint-Marie-de-Grâce (1632–1651) at La Hève.[30] Thumb-impressed bowl rims also reflect medieval ceramic traditions (Figure 7.7*c*). The sole Pentagoet example in GG2 is also mirrored at the Denys Trading Post.[31]

GG2a. Type GG2a occurs in generally similar forms, but the glaze is muted in tone, exhibiting the olive color of reduced iron rather than the bright green of copper salts (Figure 7.8). Most of these GG2a vessels can be assigned to Pentagoet I, suggesting that they may represent an earlier variety. It is more likely, however, that they represent fluctuation in quality control of the proportions of iron impurities relative to copper pigment in the lead glaze. A vessel very similar in form to that shown in Figure 7.8*a* also occurs at the Denys Trading Post, but is glazed in the brighter copper green of GG2.[32]

GG3. Although they also occur in Pentagoet III, GG3 ceramics are more common in Pentagoet I, the d'Aulnay occupation. The fabric is similar to that of GG2 vessels, although it is somewhat whiter in certain pieces (Plate 13). Unlike the GG2 specimens, GG3 vessels are glazed inside and out. The copper-lead glaze is often a brighter green, and appears to have been applied in liquid form. On most vessels, the only parts left unglazed are the exterior base and

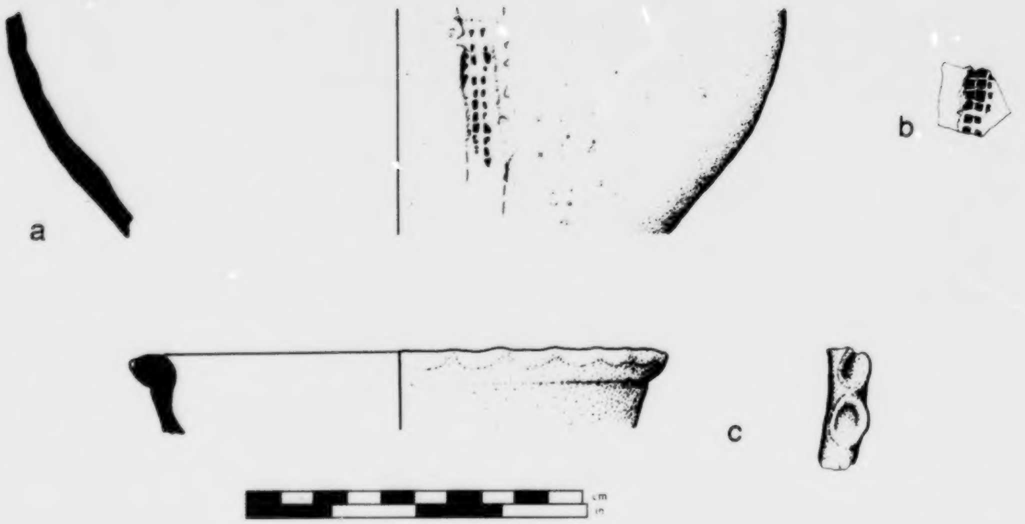


Figure 7.7 Decoration occasionally found on GG2 vessels: *a,b,* applied vertical banding applied in relief on jars and subsequently rouletted in a pattern of small rectangles, no. 6102 unglazed, no.11303 green glazed; *c,* finger impressed "pie crust" decoration on the upper margin of a small bowl, no. 3086.

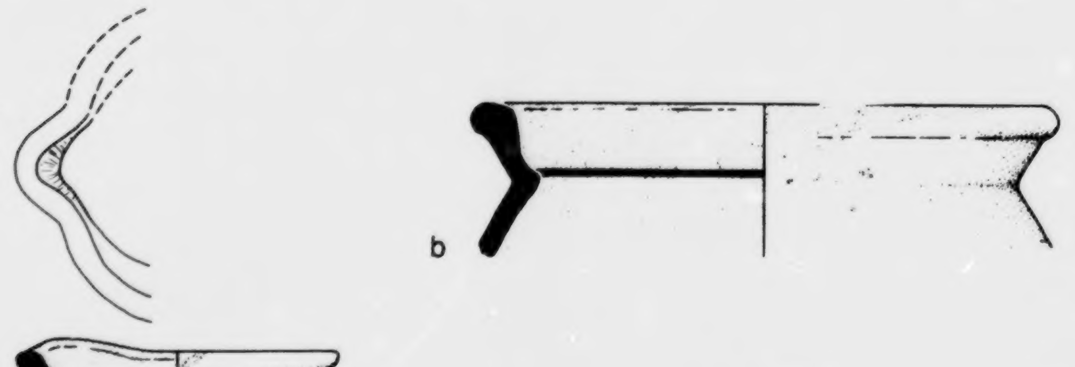


Figure 7.8 Vessel forms of Type GG2a, a ceramic similar to GG2 but having a brownish green glaze with relatively little copper: *a,* small pot with a pinched spout, no. 11637; *b,* jar, no 4140; *c,* large, Iberian style bottle neck, no. 9880, possibly from a different source altogether from the other forms.

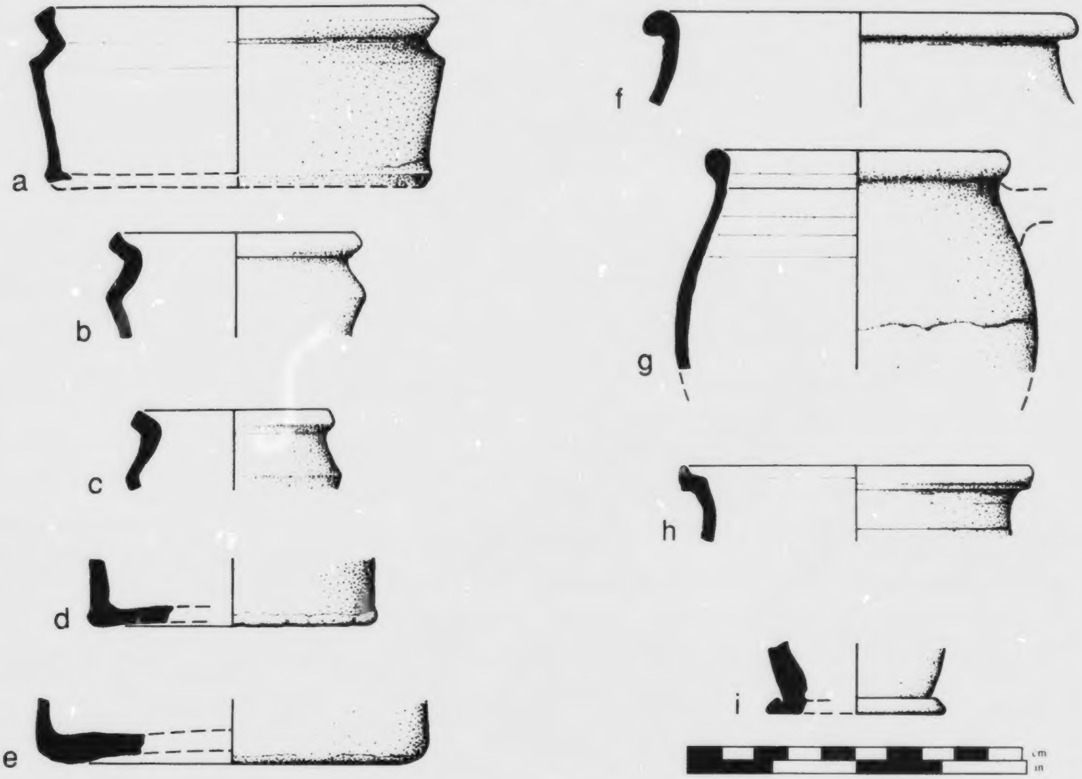


Figure 7.9 Small jars, pots and cups of Type GG3. Several rims and bases probably represent apothecary jars: *a*, no. 3777; *b*, no. 570; *c*, no. 6015; *d*, no. 11246; *e*, no. 11672. Tableware: *f*, rim of a small pot, no. 3779; *g*, finely turned mug or small pot, no. 2217; *h*, unidentified everted rim, no. 11672; *i*, unidentified base, no. 11062.

sometimes as much as the lower third of the body. The surface is generally smooth and homogeneous on the exterior of closed forms, although it can be somewhat rougher and more mottled on the interior, suggesting somewhat lower surface temperatures. In general, however, the glaze lacks the pits which frequently occur on GG2 specimens.

Although there are fewer vessels of Type GG3 than of Type GG2 at Pentagoet, they appear in a greater variety of forms. One apparently popular shape was a small, shallow jar with straight, tapered sides (Figure 7.9*a–e*). As in the well known albarello jar, a contemporary apothecary form in tin glazed earthenwares, the vessel is constricted just below the rim, forming a groove suitable for tying on a paper cover. By analogy it is likely that these too contained ointments, or drugs, although preserves are also a possibility. It was probably in jars like this that one of Pentagoet's suppliers, the merchant Henri Brunet, acquired his "bottles of Madame George's ointment."[33] Nearly identical pots have been recovered at Fort La Tour, Champlain's Habitation, and the Denys Trading Post at St. Peter's.[34] Whole jars of this kind have also been noted among the cargoes of pottery found by divers at Port Berteau, suggesting strongly that this was indeed a Saintonge product.[35]

Fragmentary remains of other small GG3 pots and mugs suitable for use as tableware also occur in Pentagoet I and Pentagoet III contexts (Figure 7.9*f–i*). Although well made and attractive, they show no special ornamentation. A few vessels, however, were more elaborate, and probably represent the finer wares of Saintonge produced specifically for export. One beach find was a bowl with a finely turned cordon beneath the rim which has been decorated by finger impressions in a design reminiscent of a pie crust edge (Figure 7.10*a*). This is a rather commonplace decorative technique, which became especially popular at 18th-century French colonial sites. Similar edge decoration has been recognized in the ceramics of Louisbourg, although in a different ware; nearly identical rim forms occur in on unglazed flowerpots from privies in Québec dating to the second half

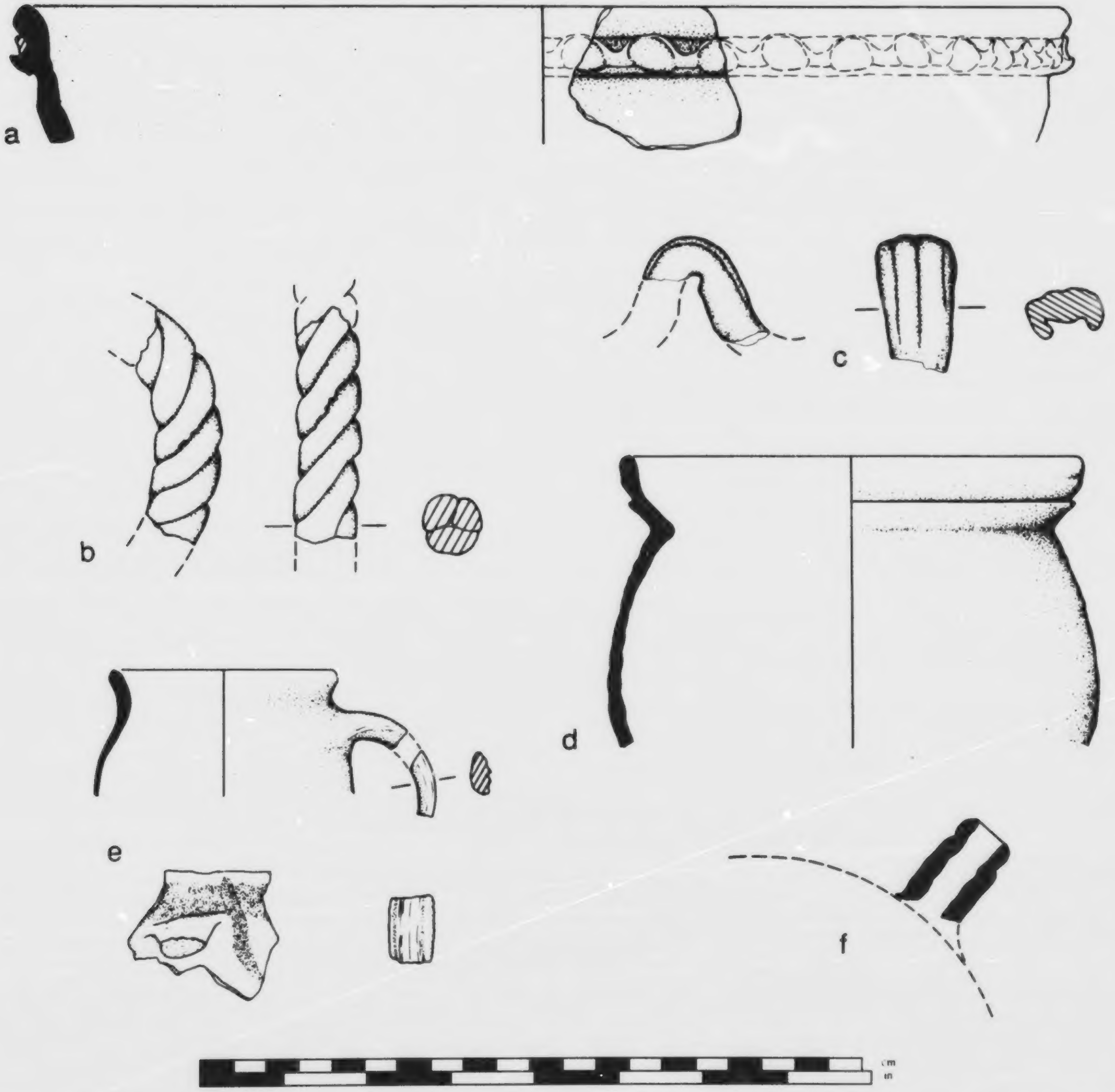


Figure 7.10 Decorative tablewares, green glazed and polychrome: *a*, GG3 bowl with thumb impressions on a finely turned band below the rim found on the beach below Fort Pentagoet, no. 785; *b*, GG3 three-ply twisted handle, no. 6231; *c*, GG3a rim loop from a bowl or a chafing dish, no. 3046; *d*, GG3b pot with yellow glazed interior, finely turned and rilled inside and out, no. 2343; *e*, PC1 cup or mug, painted in blue, brown and green respectively as indicated with increasing density of stippling, no. 1973; *f*, PC2 costrel or pilgrim bottle spout, no. 11532.

of the 18th century.[36]

A three-ply twisted handle (Figure 7.10*b*) probably belonged to a pitcher, although considering the use of elaborate handle forms for decoration in some of the Saintonge exports, other functions are possible. Similar green glazed handle fragments are known from St. Malo and from Ireland, and both have been attributed by Chapelot to the Saintonge potteries. The paste of these European finds is red, covered with a white slip, signifying 18th-century production, while that of the Pentagoet specimen is white.[37]

GG3a. This variety of GG3 ware has a distinctive, pitted surface with incompletely fused particles of iron and copper pigment, the result of lower firing temperatures. The sole example is a looped strap (Figure 7.10*c*). Such loops commonly occur on the finest Saintonge tablewares and have various functions. At Fort La Tour, for example, virtually identical loops adorn the rim of a shallow charger or platter. In this case, the loops are oriented horizontally, pointing away from the center of the vessel. Although they may also be used to carry the platter, the loops, serve principally as decoration. This may have been the function of a similar loop recovered at the Denys Trading Post.[38]

The very same form is also used on one kind of Saintonge chafing dish, in which case the peak of each loop is oriented vertically. Eight or more such loops are spaced equidistantly about the rim of the chafing dish to support the bowl or charger being warmed.[39] An example of just such a chafing dish was recovered at Champlain's Habitation, and it is likely that the Pentagoet fragment represents this same form.[40]

GG3b. Last among the green glazed types is GG3b, represented at Pentagoet by a single pot with a delicately cordoned, everted rim (Figure 7.10*d* and Plate 13, bottom right). Although green glazed on the exterior, the interior is covered with a clear lead glaze through which the paste appears yellow to olive yellow. No exact parallel has been found to this vessel in other sites, but a partially glazed pot with the same color combination—yellow on the interior and green on the exterior—has been noted in the collections of Louisbourg. Although not enough of the vessel survives to allow a complete reconstruction, it was apparently a pot with a pouring lip and two strap handles on either side, and was grossly similar in form to the GG2 vessel illustrated in Figure 7.3.[41] The combination of green and yellow-glazes is not unusual in Saintonge products although the placement is usually reversed; in Saintonge polychrome vessels, for example, the green glaze often lines the vessel interior, while a clear glaze covers the buff body and painted polychrome decoration on the exterior. In any case, GG3b is probably a fine Saintonge tableware.

Saintonge Polychrome

It is for the distinctive polychrome wares of the 16th and 17th centuries that Saintonge potteries are internationally known, as these wares were very popular exports, especially to the West Country of England.[42] According to Jean Chapelot, these products can generally be divided into two groups. The first includes those which are merely polychrome painted, usually in green and brown on a plain background which appears light yellow through the lead glaze. The second is more elaborate, having relief molded decorations applied to the vessel exteriors. These are painted in a somewhat broader range of colors, principally blue, brown, and green.[43] While the simpler type appears in both Pentagoet I and Pentagoet III, the more ornate type occurs only in the earlier occupation.

PC1. The simpler of the polychromes at Pentagoet occurs as two small loop-handled cups or mugs. Although fragmentary, these seem to be painted in a very sloppy fashion using vertical and horizontal bands of manganese brown and copper green coupled with horizontal dashes of cobalt blue (Figure 7.10*e*). Although the addition of cobalt blue seems to be something of an innovation in these 17th-century examples, this type appears to be a debased form of a brown and green painted Saintonge ware commonly found on English sites of the 16th century.[44]

The cup form at Pentagoet is lightweight and gracile, its narrow handle rather carefully molded and applied. This contrasts with the bulbous PC1 mugs from Fort La Tour, which are considerably more massive. These nearly complete Fort La Tour specimens are each fitted with a single broad strap handle which extends in a wide arc from the base to the shoulder of the vessel just below the rim.[45] The body of both the Pentagoet and Fort La Tour specimens are flattened beneath the handle to accommodate the user's fist, and so appear to have been designed as mugs. Comparable single-handled pots, although of redware and with rod section handles, are found in a wide variety of 18th-century French colonial sites in North America, and have been ascribed various functions.[46]

PC2. The most elegant export products of Saintonge were the relief molded pieces fashioned after a style pioneered by Bernard Palissy, perhaps with the assistance of some of his contemporaries. The specimens represented at Pentagoet are a costrel spout, two chafing dishes and a fragment of a probable sauce or incense boat, all found in contexts clearly dating to Pentagoet I.

One small, hollow piece from Pentagoet I can be recognized as a spout from a PC2 costrel on the basis of comparison to similar pieces found abroad, although the piece itself shows no distinctive relief molding (Figure 7.10*f*). Costrels with such spout forms were made in the form of miniature barrels designed for serving distilled spirits—"*eau-de-vie*" or "*aqua vitae*" as it was then called—at the table. Considering the source of the ceramics in an area near Cognac, the intended content was probably brandy or some related distillate of wine. Barrel costrels are well known, not only from private and museum collections but also from archaeological excavations in Britain, and have been attributed to the period 1580 to 1650.[47] Again the Pentagoet finds have surprising parallels at Fort La Tour, where a fragment comprising the filling neck and twin handles of a similar costrel was recovered. A fragment from yet another polychrome costrel has been recovered from the Denys Trading Post.[48]

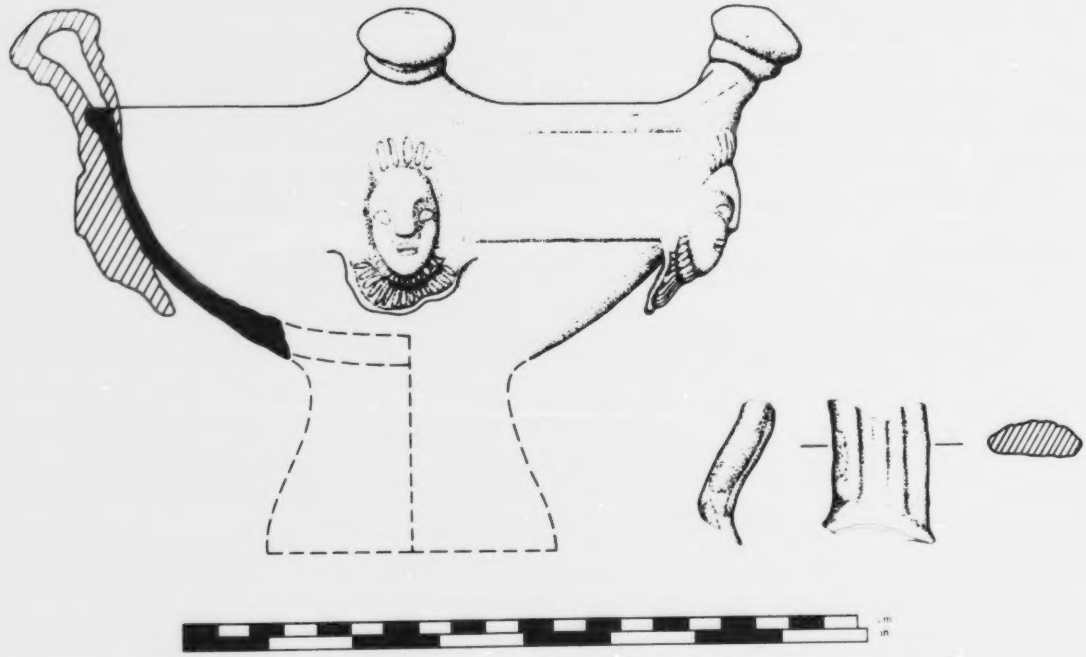


Figure 7.11 Saintonge polychrome chafing dish, Type PC2, no. 10485. Masked faces in appliqué are accented in brown and blue, while the supporting knobs and the interior are green glazed. The entire product is covered with a clear lead-glaze. A strap handle, which may have attached between the base and the body, is illustrated separately.

A more complete representation of this type at Pentagoet is a relief molded chafing dish (Figure 7.11 and Plates 14 and 15). This is a well known form exported in quantity to Flanders and Britain in the 16th and early 17th centuries.[49] These utensils were clearly not used like a brazier for cooking foods, for no holes are provided in the bowl for a draft. Rather they were used for keeping prepared foods warm at the table over a bowl of steaming water, as is done in modern cafeterias. Two fragments of similar chafing dishes have been recovered from early 17th-century contexts at Champlain's Habitation in Québec.[50]

Depending on one's tastes, this is either one of the most pleasing or most gaudy of the Saintonge products.[51] The masked faces are accented with carelessly painted patches of manganese brown and cobalt blue, while the supporting knobs and the interior are copper green glazed. Fragments from kiln wasters indicate that this ware was usually double-fired. The painting was applied after the vessel was biscuit fired; when the paint had dried, the entire product was dipped in a clear lead-glaze and fired a second time.[52]

Remarkably, a mold for a mask, grossly similar to the one used in decorating the Saintonge chafing dish, has been recovered from Champlain's Habitation. This could be part of the equipment brought by an early 17th-century Saintonge potter to New France.[53] However, since there is no evidence of the development of a local pottery industry at this time, the mold may have served some other, as yet unidentified purpose. Nevertheless it demonstrates the popularity of using small molded masks for decoration in this period.

Although the remains were fragmentary, the Fort La Tour collection boasts a greater proportion of PC2 pieces than does Pentagoet. Some ten PC2 vessels have been identified from that site, including a chafing dish, an incense or sauce boat, a costrel, a tureen or porringer, a font of some kind, and molded handles, feet and/or spouts from at least five other vessels.[54] At Champlain's Habitation, 12 pieces, or 6% of the coarse earthenwares from 17th-century contexts, are of Saintonge polychrome and 83% of the remaining earthenwares are Saintonge or Saintonge-like.[55] Clearly Saintonge tablewares were significant exports to Acadia and New France during the 17th century, and among them were the fine, relief molded polychromes.

Clear Lead Glazed Earthenwares

Two buff bodied earthenware types at Pentagoet are undecorated wares partially covered by a clear lead glaze. These are named for the color of the body as it appears through the glaze. Numerically YG1 is the second most common ceramic at Pentagoet, and its forms are important antecedents to popular French products of the 18th century. Many scholars are of the opinion that this ware is not actually from Saintonge, although there is a consensus that it originates in southwestern France, perhaps from the vicinity of Bordeaux.[56] The other clear glazed type, OG1, is represented by just one fragmentary vessel, and its manufacturing origin is uncertain.

YG1. Most if not all of the yellow glazed ware at Pentagoet derives from the final occupation of the fort, Pentagoet III. "Yellow glazed" is an accurate description of this ware, although the glaze is actually quite clear, and only adds a pale yellow tinge to the buff fabric. The paste is nearly identical to the white-firing clay used in GG2 vessels, as if it came from the same source or one geologically very similar. However many attributes distinguish YG1 forms from GG2 other than just glaze color, and indicate that it is a separate ware in its own right.

No single vessel form is more common at Pentagoet than the round bottomed, double handled, yellow glazed cooking pot or "marmite" (Figure 7.12 and Plate 12 right). The distinctive set of attributes which characterize this form is unique and invariable in the Pentagoet assemblage, and differs from any of the known forms in the Saintonge pottery inventory. The long rod handles, which form a loop between the rim and the lower half of the body, are universally of round or oval section, and are quite distinct from the broad strap handles which occur on GG2 vessels. Unlike any GG2 form, the body is almost spherical; the bottom shows only the slightest flattening, resulting in a base which is unstable without external support. Furthermore, the everted rim is much broader than its counterparts on green glazed pottery.

The apparent uniqueness of this shape can probably be accounted for by its distinct function, rather than any major stylistic preference. This YG1 vessel is, after all, a cooking pot, whereas most GG2 vessels were designed for storage. Nearly all marmite bottoms are charred about one-quarter of the way up the side. The round bottoms were apparently designed to sacrifice stability for durability, which is especially important in a ware so thin. The body form takes advantage of the strength of the sphere in resisting the thermal stresses inherent in cooking. Expansion occurs more evenly than in an angular or footed vessel, where stress would be highly concentrated about the base. The funnel-like rim is well designed for filling and pouring out the hot contents.

As on many GG2 forms, the glaze on YG1 marmites was applied only to the interior of the rim, any excess being allowed to puddle in the bottom. Again this was probably a primitive non-stick coating to allow the easy removal of a lid, all-important in a cooking vessel where cooked-on food would surely weld the cover to the pot. Although no such covers have been unearthed at Pentagoet, two lid forms have been noted at Louisbourg belonging to this vessel form. Both have rod section loop handles, and one has steam vents.[57]

The large, rod section, loop handles were probably more practical for cooking than the more traditional broad strap handles. The tight radius design of the strap handle seems awkward to manipulate, and certainly the rod form would have been an advantage in manipulating a hot vessel with an unstable base. They were apparently not used for suspension by a bail, however, as there is no evidence of wear on the undersides of the handles. Instead the cooking pot form could only have been stable when seated on a bed of coals at the hearth, or while seated on a separate support—a ring stand or perhaps a trivet of some kind. A 17th-century painting of a kitchen by Velasquez shows marmites set on a stucco covered stove, where they fit into square holes above the fire. Although no such stove has been identified at Pentagoet, some comparable equipment may well have existed. The method of storing the round marmites when not in use is also shown by Velasquez—they are simply turned upside down and placed on the fireplace hood to keep them from rolling around.[58]

If this marmite form is common in Europe, is has rarely been reported. Nevertheless, three such specimens have been recovered from underwater sites at St. Malo and Port Berteau. These are buff bodied, and yellow glazed on the interior, and in form are very similar to the Pentagoet specimens, although the rims are not quite as broad.[59] On French sites in North America, the marmite is apparently unknown until c. 1660. No such products occur at Pentagoet I or at Fort La Tour, where pipkins or strap handled green glazed forms may have served in their stead.[60] A rod-section handle fragment has been unearthed at the Denys Trading Post (c. 1650 –1669), and in Québec, the vessels have been noted as early as c. 1675.[61]

In spite of its rarity in 17th-century contexts, the round-bottomed, double-handled cooking pot form is becoming very familiar as more and more 18th-century French colonial sites are excavated. As with the green glazed Saintonge products, these pots follow the trend of later production in using red firing clays. The marmite was common in the cargo of the *Machault*, a vessel from Bordeaux which was sunk by the British in 1760 at the mouth of the Restigouche River, on the borders of Québec and New Brunswick. The origin of the cargo in Bordeaux gives further credence to the suggestion that these marmites derive from this region of southwest France.[62]

Although the *Machault* marmites are otherwise remarkably similar to their YG1 counterparts, the paste has fired a deep buff to a brick red. As with the Pentagoet specimens,

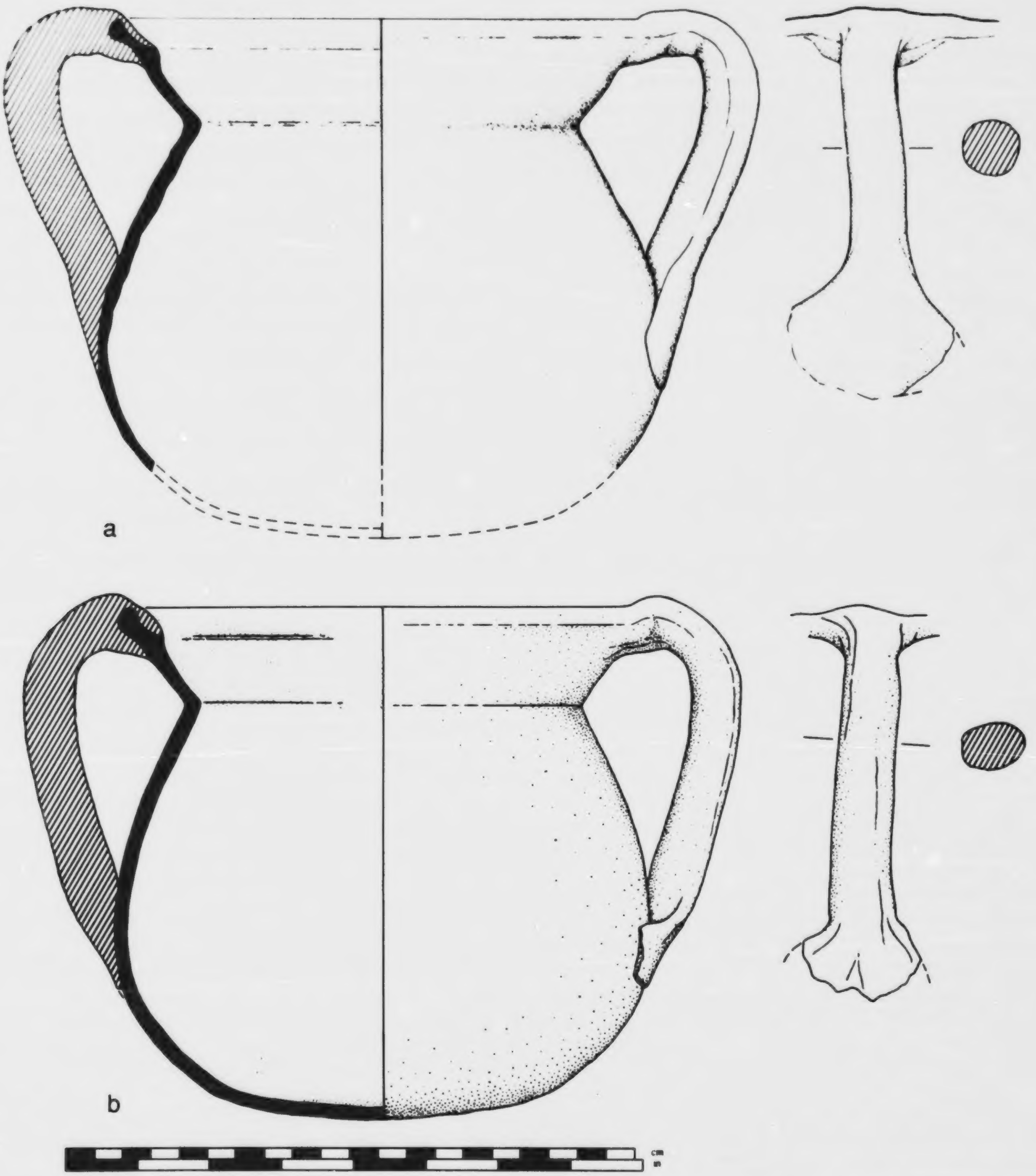


Figure 7.12 Double-handled, round-bottomed cooking pots, Type YG1: *a*, no. 999, rim diameter 19 cm; *b*, complete vessel, no. 117, rim diameter 18.6 cm, height 18 cm. A clear lead glaze is applied to the rim only, coloring the buff paste a pale yellow.

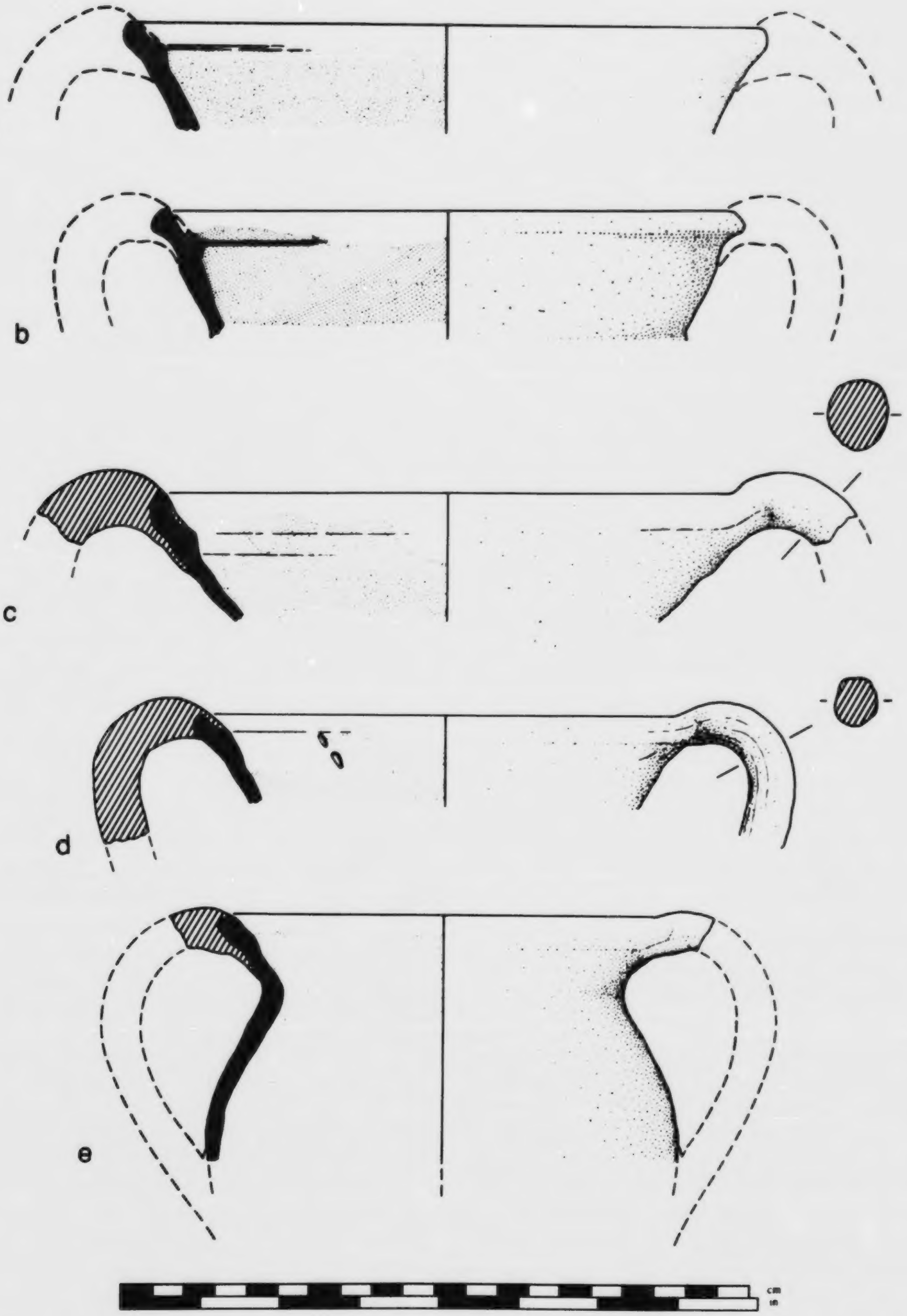


Figure 7.13 Rim forms, showing varying sizes of YG1 double-handled, round-bottomed cooking pot: *a*, no. 4747, rim diameter 20.5 cm; *b*, no. 7379, rim diameter 19.0 cm; *c*, no. 4895, rim diameter 19.0 cm; *d*, rim diameter 16.0 cm; *e*, no 7639, rim diameter 14.3 cm.

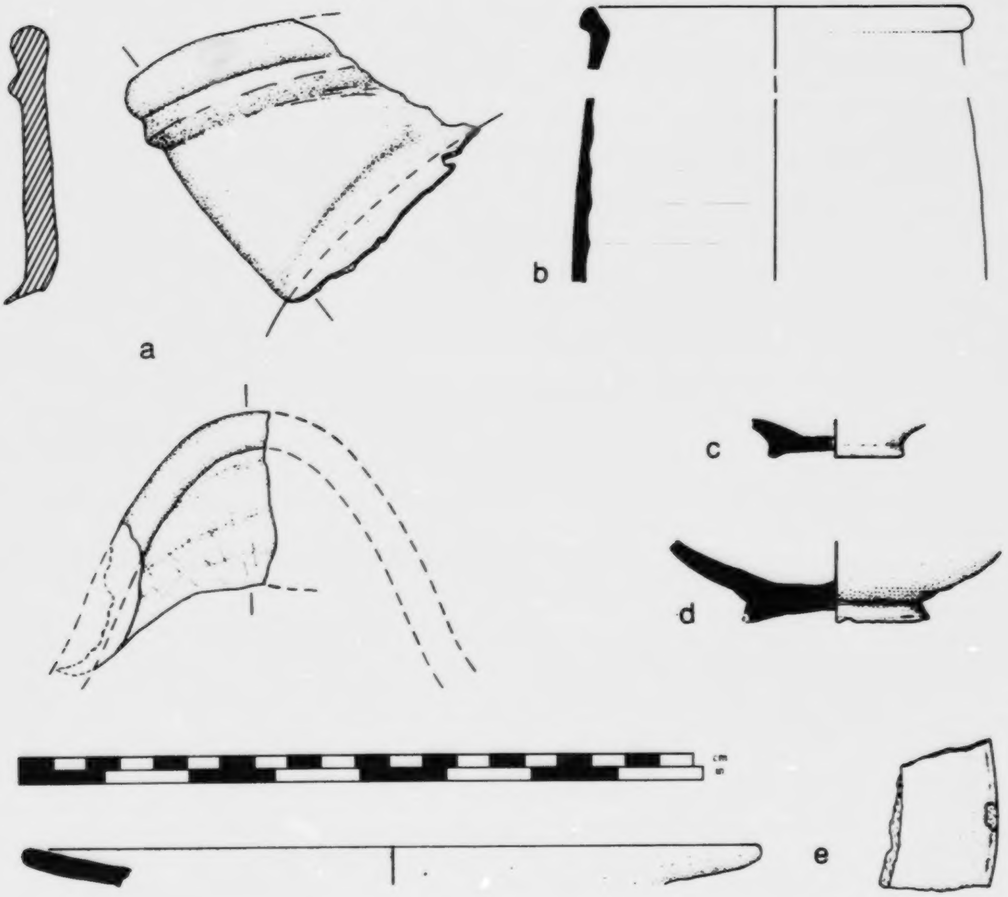


Figure 7.14 Miscellaneous YG1 forms: *a*, spout, probably to a tall pitcher, no. 8356; *b*, reconstruction of a single small jar, nos. 2193 and 1294, rim diameter 11.5 cm, orientation of body sherd speculative; *c–d*, bases to small pots, nos. 147 and 8149; *e*, plate rim, no. 3406, rim diameter 22 cm.

the glaze was applied to the interior rim only, except where it had apparently puddled in the bottom. The *Machault* pieces can be grouped in two sizes based on rim diameter: a large size ranging from 20 cm to 25 cm, and a small size ranging from 15 cm to 18 cm. While the Pentagoet specimens range from 14.3 cm to 20.5 cm (Figure 7.13), the most popular Pentagoet size, at 19 cm, stands midway between the *Machault* specimens, suggesting that the later forms have become somewhat differentiated, and perhaps more specialized in function.

Similar finds have been made on an number of other 18th-century sites. For the fortified city of Louisbourg, on the eastern tip of Cape Breton Island, Kenneth Barton describes a variant having a buff to salmon pink body, the rim of the pot coated in the same way, with a "fine red, almost orange-coloured glaze."[63] At La Place Royale in Québec, one such vessel has been found at the Perthuis House (1682-1759).[64] Nearby, in the latrines of the Estèbe and Boisseau Houses (1755-1757) were found three more marmites, which had a sand tempered red fabric covered with a thin lead glaze.[65]

Very few other YG1 forms exist at Pentagoet. A spout probably comes from a large pitcher, generally similar to one found at Port Berteau (Figure 7.14*a*).[66] Small pots and straight sided jars are also known from fragments at Pentagoet, but no counterparts have yet been identified elsewhere (Figure 7.14*b–d*). A flat, yellow glazed rim, appears to be the only flat form in the entire collection of buff bodied earthenware at Pentagoet (Figure 14*e*). Alternative functions such as a pot cover have been suggested, but the specimen is unlike the covers at Louisbourg, and is too large for any of the YG1 marmites at Pentagoet.

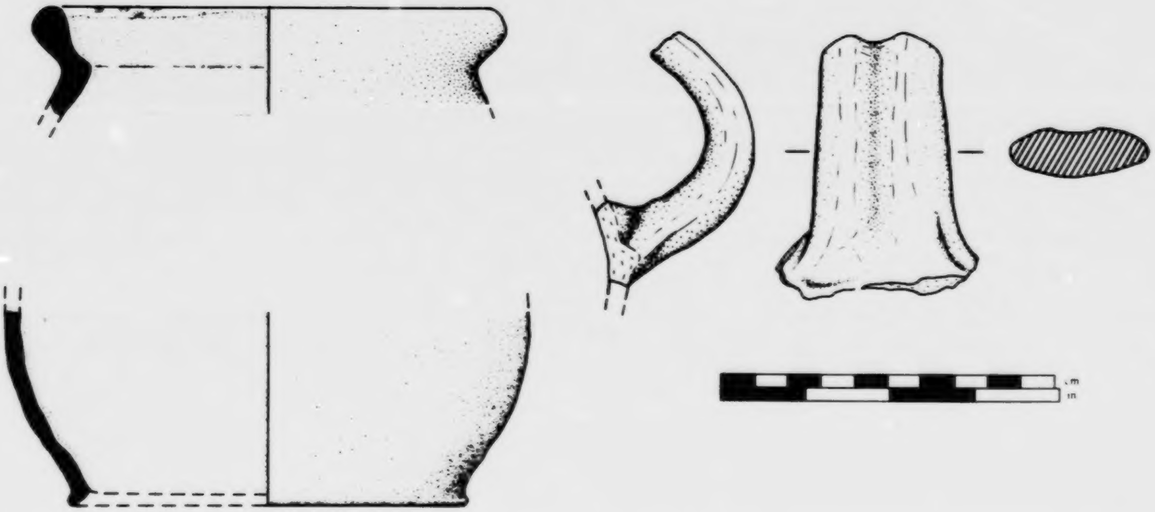


Figure 7.15 Single-handled pot, Type OG1, no. 869, rim diameter 14.0 cm.

OG1. The final specimen in this grouping is intermediate in color between buff bodied earthenwares and redwares. It is apparently made of a light colored paste having sufficient ochrous impurities to fire a reddish yellow in an oxidizing atmosphere. The body is partially covered with a thin, dimpled lead glaze through which the paste appears bright orange, prompting the field designation "tangerine ware." At Pentagoet, OG1 is represented by a single small strap-handled pot (Figure 7.15). Although it would be unwise to try to identify the source of this vessel on the fabric alone, sherds of an apparently identical nature have been identified from Southampton, England, dating to the middle quarters of the 17th century.[67] Its occurrence in the fort can be assigned either to Pentagoet III or possibly to Pentagoet II. However, until further comparisons can be made, the English origin of this piece remains in question.

Redwares

Redwares are far less common in the 17th century at Fort Pentagoet than are buff earthenwares, and in general their origins are not as well understood. They are universally undecorated utilitarian wares which, if glazed at all, are thoroughly covered on the interior with some form of lead glaze. This finish renders the vessels impermeable, unlike the crudest of the French buff earthenwares, which are commonly sealed only along the rim. Two of the redwares can clearly be identified as products of the West Country of England, and it is likely that the other redwares, with the possible exception of RW1, are English or of New England manufacture. The forms range from large, bulky, two-handled storage jars or crocks to tall, narrow baluster forms without handles. Although some of these jars could have served in the dairy, such common specialized forms as cream pots and milk pans are conspicuously absent.

Unglazed Redwares

Unglazed redwares are especially scarce in 17th-century components at Pentagoet, as only 20 sherds have been found, representing approximately seven vessels. The scattered and highly fragmented remains can be grouped into two types, RW1 and RW2. Although neither type has been found in unambiguous chronological contexts, the degree of fragmentation and scattering suggests that they both date before Pentagoet III.

RW1. The paste of RW1 is relatively homogeneous and has fired a pale red to red. Its most noteworthy characteristic is the occurrence of frequent fine mica flecks in the paste, probably a natural component of the clay source rather than as an added tempering agent. Only fragmentary hollow forms have been found, although the neck of one of these vessels indicates at least one bottle. Micaceous wares are well known in the southwest peninsula of England, particularly in medieval contexts; clays derived from the granite bedrock in the area have been used since at least 1450 in the potteries of St. Germans. But the mica of the RW1 sherds appears to be much finer than that which is described for southwest England.[68] Micaceous wares are also common in the Spanish and French Mediterranean coast, and may have figured in the trade conducted at La Rochelle.[69] At this point, however, it is not possible to identify the source of the RW1 sherds, as the collection is simply too small and the forms are not well defined.

RW2. The paste of the second type in this group, RW2, is a marbled mixture of red and white firing clays, similar to many 18th-century English wares, such as Buckley Ware, Agate ware, and certain Staffordshire slipwares.[70] Surfaces of these plain sherds, however, are a fairly uniform red, and have been fired in an oxidizing atmosphere. Forms represented are certainly hollow rather than flat, but otherwise are too fragmentary to be identified. Thus, while origin of these fragments is unknown, the marbled paste suggests England as the most likely source.

North Devon Lead Glazed Redwares

North Devon merchants and supercargoes, many of them Puritans, marketed their products aggressively in the New World.[71] Of the decorative tablewares produced in England during the middle quarters of the 17th century, perhaps none has been found more commonly on English colonial sites than North Devon Sgraffito. This is a lead glazed ware which exhibits designs incised through a white slip to expose the redware body beneath.[72] No trace of this distinctive earthenware has been found at Pentagoet, and only one platter or trencher rim has been recovered from Fort La Tour.[73] Clearly the early Acadians were relying on decorative French tablewares from Saintonge, and not English products relayed via Boston or some comparable source. The North Devon products which do occur at the site are principally storage vessels. Only one vessel, a RW3 storage jar, comes from French contexts at Pentagoet, while the fifteen RW4 vessels are associated with the English Plymouth Colony trading post, in operation on the site from 1629 to 1635.

RW3. The single gravel tempered vessel found is a very large double handled crock or jar with thumb impressed buttressing underneath the rim, which dates to Pentagoet III (Figure 7.16). The fire that destroyed Pentagoet in 1674 badly damaged this crock, discoloring and boiling the glaze and causing the surface to exfoliate. As a consequence, it took four years of careful mending to determine that the 122 larger sherds and dozens of smaller fragments actually were of the same type, and belonged to the same vessel. While no exact match to this form has been been found elsewhere, close parallels have been identified in the wasters of Barnstaple potters. Similar finger impressed or "thumbed" buttressing of the rim has also been noted in these collections, as has the handle form illustrated, and it seems clear that this was a North Devon product.[74]

North Devon Sgraffito lost popularity after c. 1660, but North Devon Gravel-Tempered crockery, redistributed through Boston, was relatively popular in agricultural New England at that time for use as dairy wares.[75] The Pentagoet crock may have served in this activity, as cattle are known to have been kept in a barn across the stream from the fort. The specimen in question, however, does not appear to have been designed specifically for dairying. Its carefully grooved lip turns inward, as if to receive a disk-shaped seal or lid, suggesting that the crock was designed for long term storage. Furthermore, its great bulk and capacity of approximately 23.1 liters makes it a questionable product for storing butter or other dairy products.

This fabric, made of clay tempered with coarse sand or "gravel," was reserved for potting larger items, especially those which would be exposed to heat in use; small ovens, in fact, were made of this paste up until the 19th century.[76] Yet in view of the total disintegration of the Pentagoet specimen in the heat of the destruction of the fort, while other ceramics were relatively unscathed, it is unlikely that this particular specimen ever was used for cooking. The vessel was probably neither a dairy crock nor a cooking pot, but rather another form of storage container in which some unknown goods were transported to Pentagoet, and it is reasonable to suspect that these supplies came via New England.

RW4. Certainly one of the most distinctive common earthenwares at Pentagoet is Type RW4 because of its unusual firing coloration and its diagnostic shapes. Although other closed RW4 shapes are represented in the collection, the only vessel form which can be fully reconstructed is the tall baluster jar (Figure 7.17). The constriction below rim was probably a provision for tying on a cover in the fashion of apothecary jars. This tall shape is invariably rilled on the interior surface, especially near the base. Such turning marks are surely the technological side effects of making tall, narrow shapes, for the potter must work with the clay modeled tightly about his arm, shaping the interior with his fingertips.

These tall vessels were apparently fired upside down and partially closed, for the interiors are fired a reduced gray while the exteriors are highly oxidized. This bi-color attribute appears to be a diagnostic characteristic of this ware. The fabric, moreover, is not the coarse sand tempered paste of larger North Devon vessels, but a rather fine red paste with only occasional grit inclusions. This body is covered on the interior with a lead glaze having some iron impurities which, like the paste, has fired to reduced, mottled colors, varying from a yellowish brown to a light olive brown.

These forms are actually quite common in post-medieval contexts in the West Country of England. Whole specimens in a range of sizes are known from Barnstaple and Plymouth, where they are dated in the "17th century or later."[77] They were also a common component of the cargo of the *Sea Venture* which went down off Bermuda in 1609, where they have been described as "pilchard jars," i.e. containers for pickled herring.[78] In this case, the jar is interpreted as one of the many forms of "fish stean" or "fish pot" produced in quantity to package one of the more popular products of western England.[79]

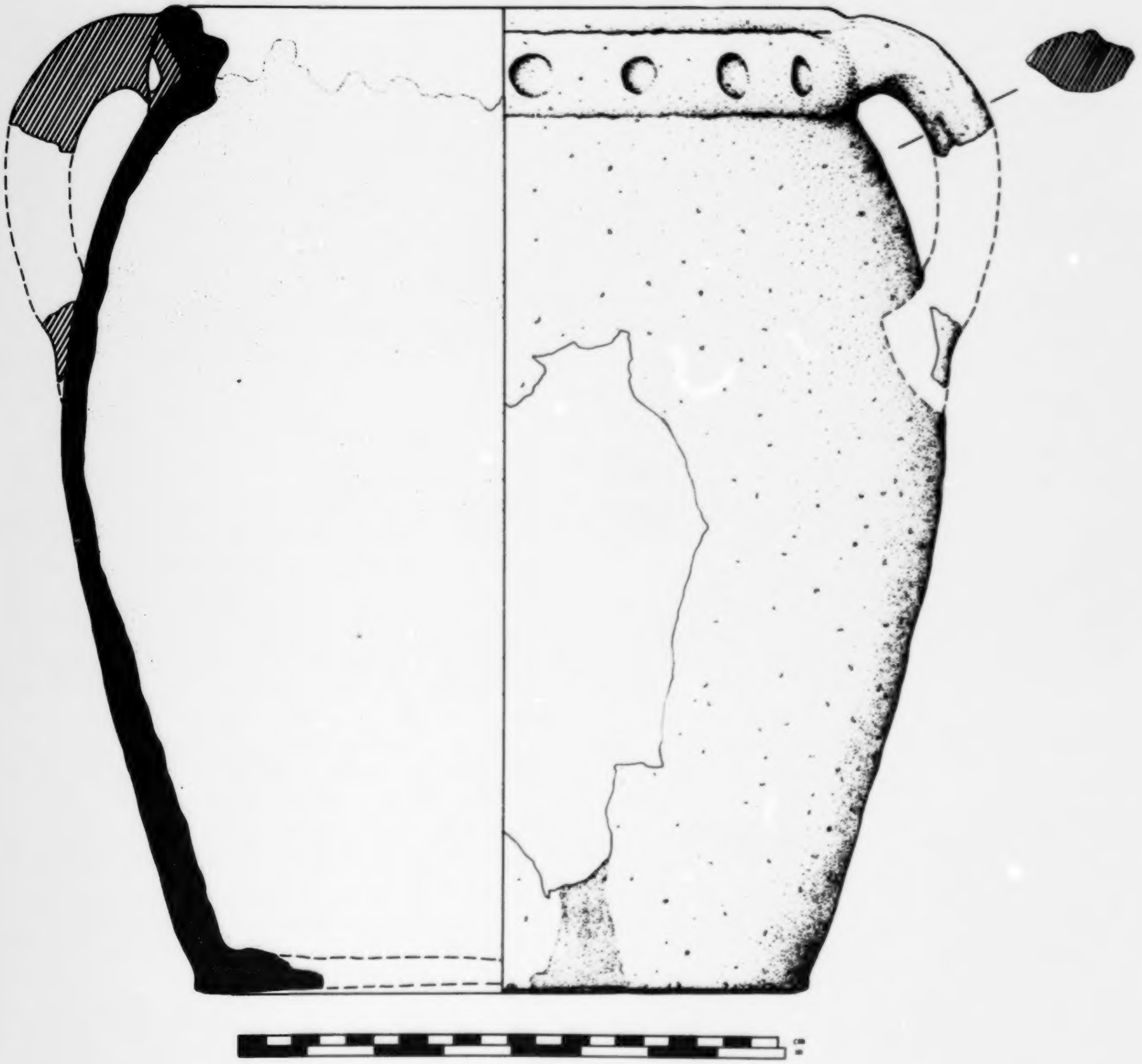


Figure 7.16 North Devon gravel tempered jar or crock, Type RW3, no. 460, rim diameter 25.5 cm, height 36.2 cm, capacity approximately 23.1 liters. Note that this, double-handled vessel is by far largest vessel recovered at Pentagoet. Finger impressed buttressing reinforces and decorates a thick, heavy rim.

In recent years, this North Devon or "West of England" baluster form has been recognized at a number of early 17th-century English sites in North America, ranging from Wolstenholme Towne and the Yeardley Plantation along the James River in Virginia, to Richmond's Island off Cape Elizabeth Maine.[80] So far they have been restricted to contexts pre-dating 1635, suggesting that the type may be a very good indicator of early 17th-century settlement. While these baluster jars may have come to the frontier trading post at Penobscot filled with pickled fish, such pottery was also exported to North America in its own right.[81]

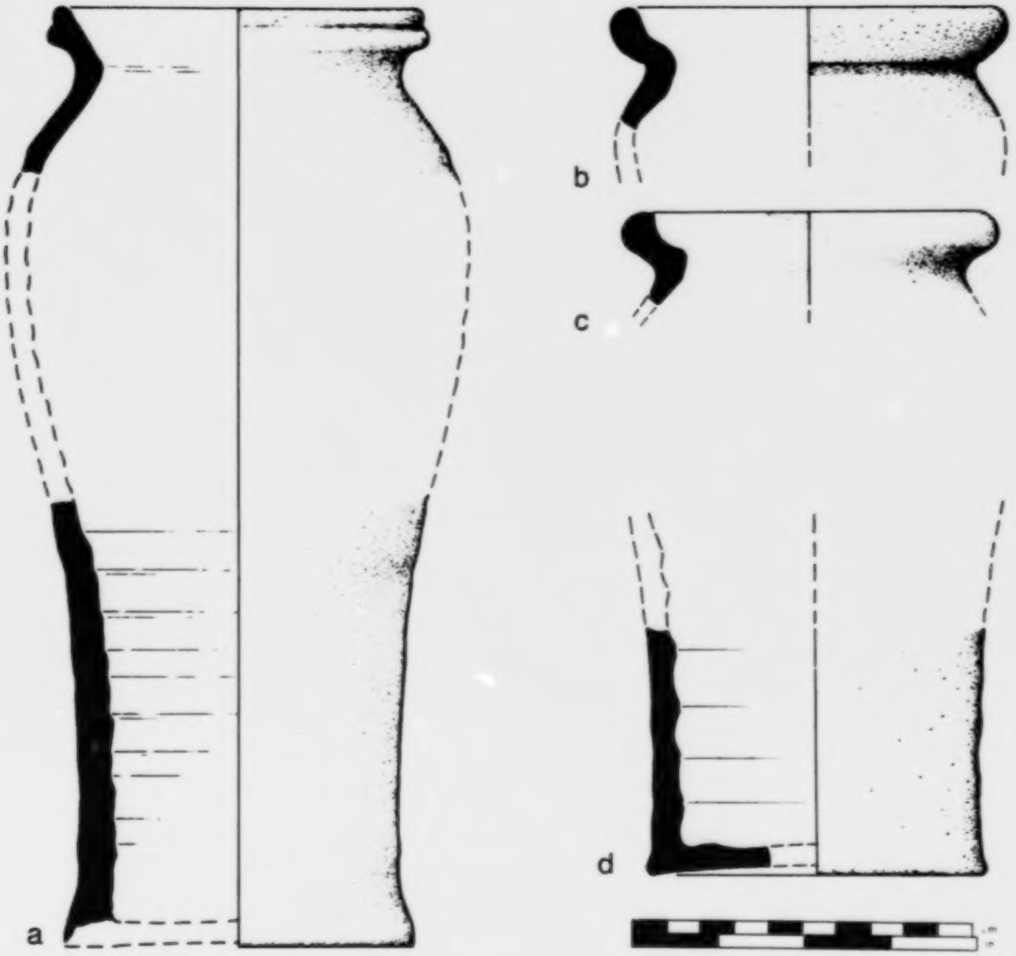


Figure 7.17 North Devon gravel free baluster jar bases and rims, Type RW4: *a*, no. 80; *b*, no. 2249; *c*, no. 3227; *d*, no. 2254. As is characteristic of this type, this vessel has been fired an oxidized red on the outside, and a reduced gray on the inside. A light olive brown lead glaze coats the interior.

Other Lead Glazed Redwares

Two other types of lead glazed redware were identified in 17th-century contexts at the fort, representing in all approximately seven vessels. Because of their highly generalized attributes, it is not possible at this point to identify their origins positively, although it is highly likely that they were made in New England. All were hollow vessels, and although they may have been used in the dairy, the milk pan form is conspicuously absent.

RW5. The light red paste of RW5 is dense and homogeneous with occasional calcareous inclusions, but no obvious tempering. The single globose vessel represented is covered on the interior only with a lead glaze through which the body appears dark reddish brown and the small calcareous inclusions appear as yellow flecks. The position of this type in the Pentagoet chronology is ambiguous, and it is even possible that it is an intrusive 18th-century product.

RW6. One large RW6 storage jars has been largely reconstructed (Figure 7.18), and a two rims and a base of other crocks have been identified as well (Figure 7.19). Like RW5, the fabric is dense and red, and contains occasional fine grit inclusions. The most distinctive feature of the ware is its dark, chocolate brown glaze which covers interior surfaces, and also occurs as drips on the exterior. Again, none

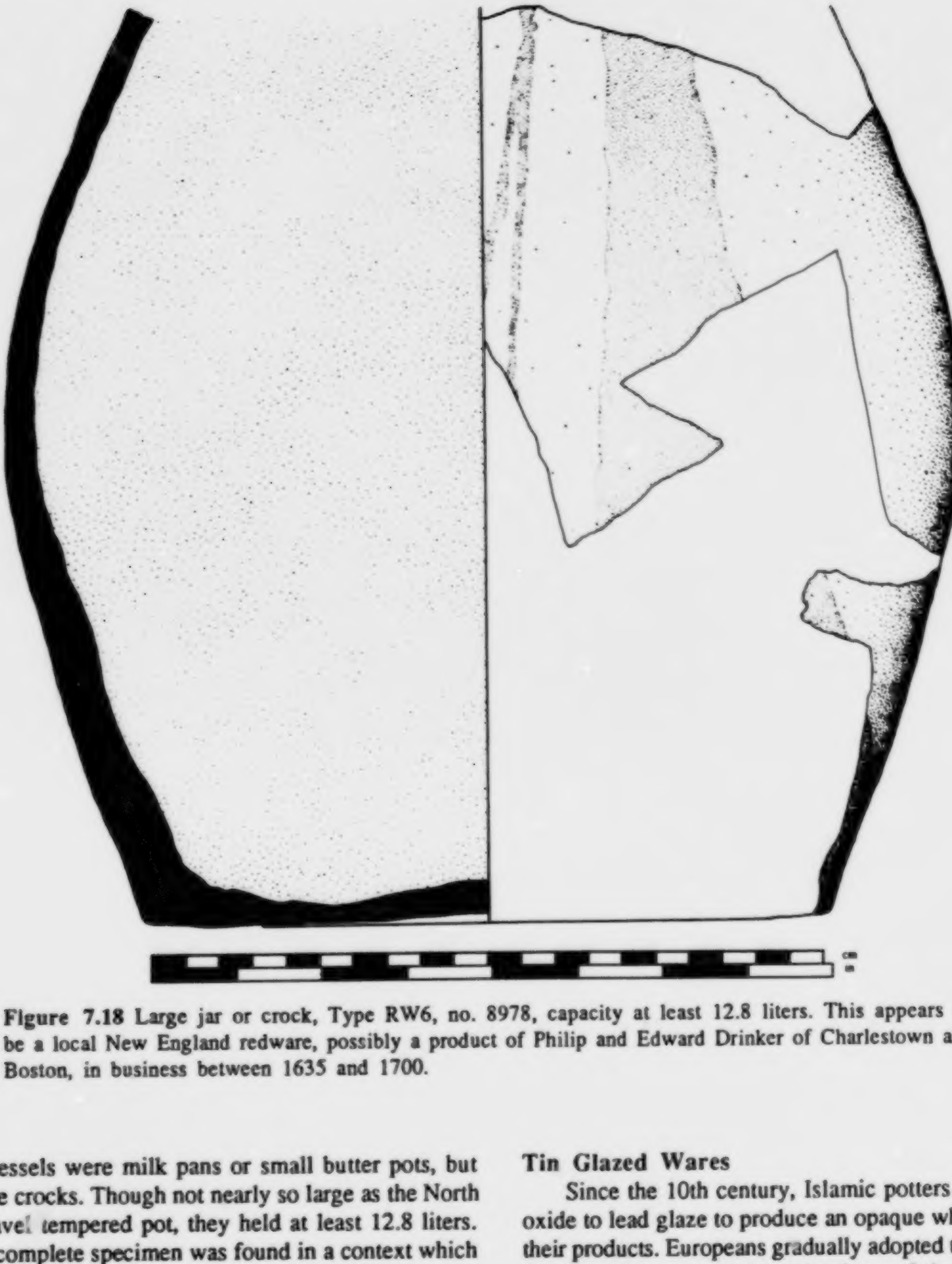


Figure 7.18 Large jar or crock, Type RW6, no. 8978, capacity at least 12.8 liters. This appears to be a local New England redware, possibly a product of Philip and Edward Drinker of Charlestown and Boston, in business between 1635 and 1700.

of these vessels were milk pans or small butter pots, but rather large crocks. Though not nearly so large as the North Devon gravel tempered pot, they held at least 12.8 liters. The most complete specimen was found in a context which clearly dates to Pentagoet I, while the other fragments may be belong to Pentagoet II or III.

Of all the ceramics this particular redware gives the best indication of trade with New England. An apparently identical ware has been noted in Charlestown, Massachusetts, and is thought to be the product of Philip Drinker and his son Edward, at work in Charlestown and Boston between 1635 and 1700. This ware, or one very similar to it, was recovered in great numbers in the recent excavation of the house of Edward Drinker's brother in Charlestown.[82]

Tin Glazed Wares

Since the 10th century, Islamic potters have added tin oxide to lead glaze to produce an opaque white covering to their products. Europeans gradually adopted this idea, and by the late 16th century the technology of tin enameling had spread via Spanish and Italian potters to France and the Low Countries. From the Netherlands the technique quickly spread to England. The opaque covering disguised the soft paste earthenwares, producing a very appealing surface, particularly suitable for tablewares. It became a popular medium for Renaissance artistic expression, as well as an inexpensive imitation of fashionable oriental porcelain.[83]

Pentagoet's tin glazed wares occur in two distinct pastes, one buff firing and the other pink firing, each with

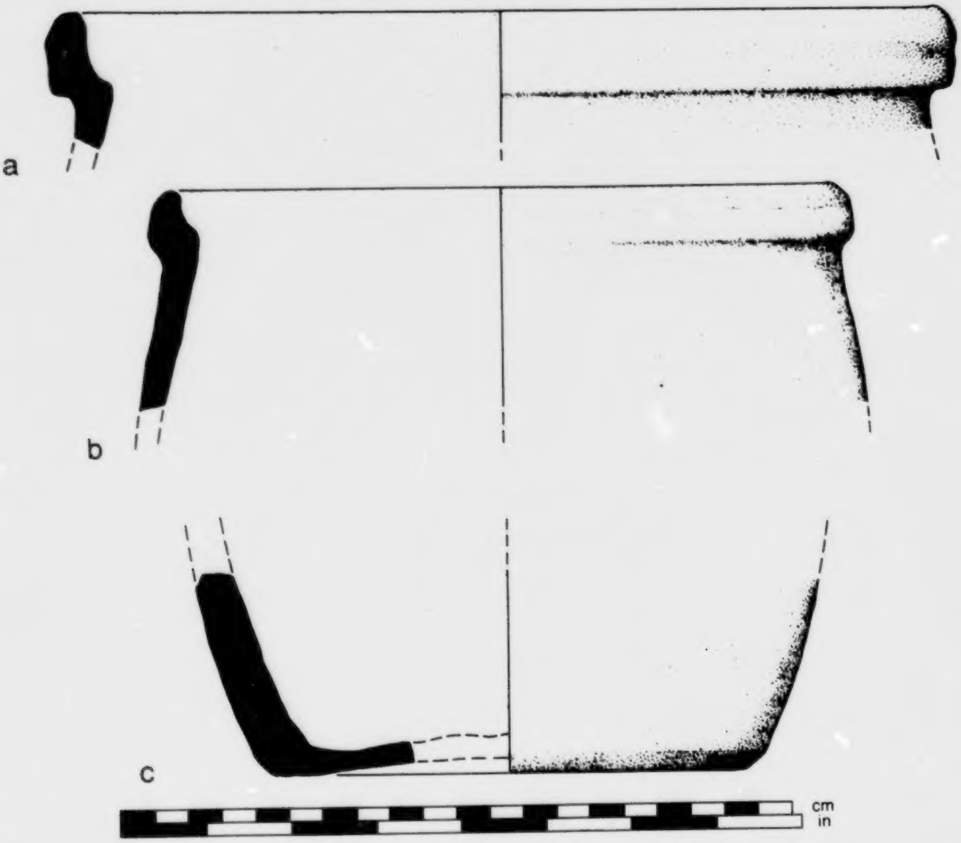


Figure 7.19 Redware crock rims and a base, Type RW6: *a*, no. 2456;*b*, no. 10012; *c*, no. 9207.

its own distinctive vessel forms or decorative techniques. The former will be referred to as delftware with a small "d" indicating that the product could either be a Dutch product similar to those of Antwerp or Delft, or an English product made by immigrant Dutch craftsmen. In the 17th century these ceramics appear to be all but indistinguishable, even to those experts who have worked directly with ceramic pottery wasters.[84] The second pink bodied ware will be referred to as faience, although its identification as a French product is largely circumstantial. Nevertheless, in the 18th century French faience is often red bodied, as in the debased products of Rouen.[85] Neither delftware nor faience is numerous at the site, but they both appear to have been used for a variety of apothecary and table forms in both Pentagoet I and Pentagoet III.

Delftware

Just as a whole range of delftware forms began to come into Virginia beginning in the 1640's, they also appeared at Pentagoet, although in small quantities. The forms include apothecary jars, hollow tableware, and Pentagoet's only ceramic plates. While London seems to have been the source of many delft ceramics Virginia, on French colonial sites a Dutch source is more likely.[86] The Pentagoet delftware vessels are thoroughly tin glazed on all surfaces, contrary to Noel Hume's observation that until about 1670 delftware from London was often covered on the back with a semi-transparent lead glaze, albeit often polluted with tin.[87] A Dutch origin is all the more plausible considering the presence of other Dutch products at the site.

TG1, plain delftware. Plain delftware is represented at Pentagoet by highly fragmented vessels including pharmaceutical forms, a cup rim, and a small bowl or porringer (Figure 7.20*e*, *g*). A plain drug pot is of the albarello form popular in the late 16th century and throughout the 17th century (Figure 7.20*a* and Plate 16, bottom center). This basically cylindrical form is characterized by a constriction just above the base, forming a foot. A similar constriction occurs just below the rim, allowing a paper cover to be tied to the vessel. This particular specimen has a slight constriction in the middle of the body—a waisted form generally attributed to

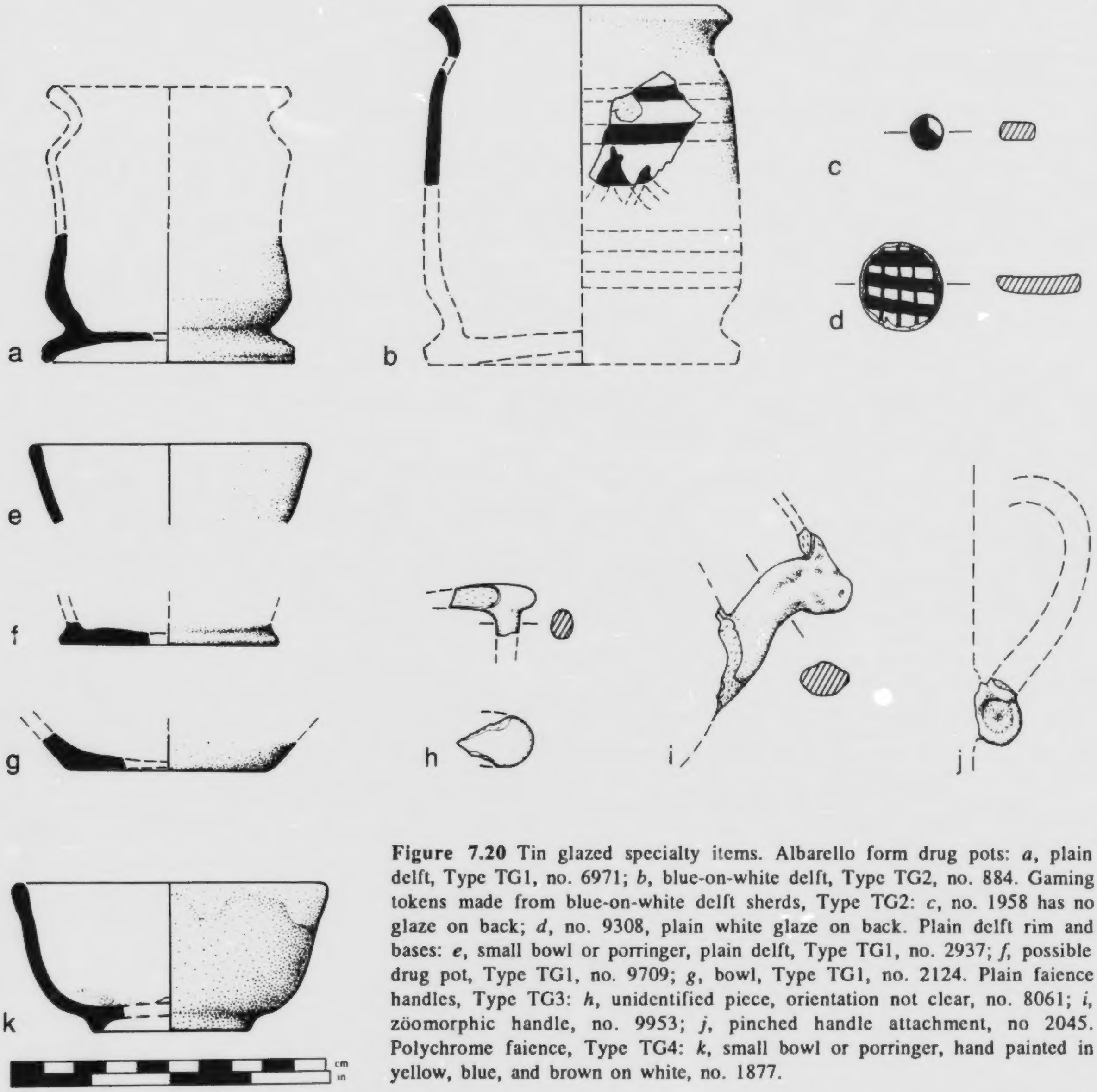


Figure 7.20 Tin glazed specialty items. Albarello form drug pots: *a*, plain delft, Type TG1, no. 6971; *b*, blue-on-white delft, Type TG2, no. 884. Gaming tokens made from blue-on-white delft sherds, Type TG2: *c*, no. 1958 has no glaze on back; *d*, no. 9308, plain white glaze on back. Plain delft rim and bases: *e*, small bowl or porringer, plain delft, Type TG1, no. 2937; *f*, possible drug pot, Type TG1, no. 9709; *g*, bowl, Type TG1, no. 2124. Plain faience handles, Type TG3: *h*, unidentified piece, orientation not clear, no. 8061; *i*, zöomorphic handle, no. 9953; *j*, pinched handle attachment, no 2045. Polychrome faience, Type TG4: *k*, small bowl or porringer, hand painted in yellow, blue, and brown on white, no. 1877.

the late 16th century or very beginning of the 17th century.[88] In this case, the piece was found in a midden just outside Structure 7, the oldest building at Pentagoet, thought to be d'Aulnay's residence during Pentagoet I.

TG2, decorated delftware. Delftware at Pentagoet is painted in plain blue on a white background rather than in polychrome. One example is a single albarello drug pot (Figure 7.20*b*). This specimen was found above the Pentagoet rubble as a highly fragmented residual, and therefore can not be attributed to any particular occupation. However a single specimen was recovered at Fort La Tour and another at the Denys Trading Post—both very similar to the Pentagoet example.[89]

The remaining specimens are three shallow plates, all clearly associated with Pentagoet I, two of which are shown in Figure 7.21*a–b* and Plate 16, top row. The simple tulip, and wavy line designs represented are now badly damaged by exfoliation of the glaze, but originally they were quite handsome. Yet the glaze shows no obvious scratches, abrasions,

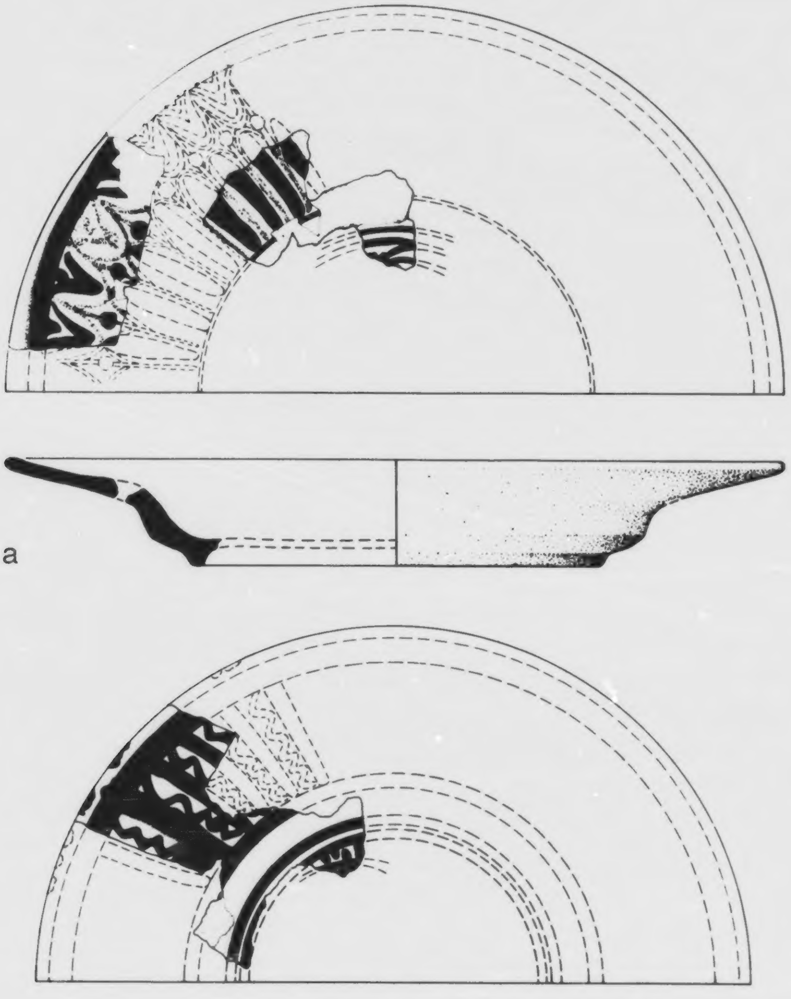


Figure 7.21 Tin glazed plates. Blue-on-white delft, Type TG2: *a*, tulip motif with paler blue pigment indicated by lighter stippling, no. 8682; *b*, wavy line motif, no. 9820. Plain faience, Type TG3: *c*, TG3, plain tan plate rim, no. 9518.

or knife marks, in contrast to most other mundane items at the site which show extensive evidence of everyday use. James Deetz has described the adoption of plates into the tableware of 17th-century Plymouth, noting that they did not generally become used as eating utensils until the latter part of the century.[90] This view is reinforced by contemporary Dutch *genre* paintings in which delftware plates often appear on walls, mantles or chests; the footrings of some Dutch examples in museum collections even have holes for hanging them.

Yet the Pentagoet specimens were painted with mere geometric designs, not with biblical scenes, portraits of monarchs or gaily painted peacocks—popular contemporary subjects which might have been used on pieces intended for display. Again genre paintings offer a possible explanation. Simple delftware forms sometimes appear on tables holding fruit, although they are rarely, if ever, shown as eating utensils. Perhaps the Pentagoet pieces were similar serving plates, holding fruit or perhaps some paraphernalia unrelated to foodways. In any event, it is apparent that these plates did merely serve a "technomic" function as utensils, but also a "socio-technic" function, indicating the status of the owner, or at least expressing his esthetic sensitivity. That they were discovered in the refuse immediately surrounding the supposed d'Aulnay house makes this explanation all the more plausible.

Two blue-on-white plate sherds have been rounded to make what appear to be gaming pieces, both found in later Pentagoet III contexts (Figure 7.20*c–d* and Plate 16 middle row left). Thus it is apparent that whether or not they served as eating utensils, plates were at least broken in primary use, and not merely at the demolition of the fort. Their esthetic value was preserved, moreover, when the sherds were recycled to make colorful tokens. The cross-hatching represented on one of the pieces, which features broad strokes intersecting very fine ones (Figure 7.20*d*), is interesting because it matches the decoration on fragments of a plate from Fort La Tour.[91] A badly burned sherd of a delftware plate having a related design occurs at the Denys Trading Post.[92]

Faience

Although French faience reached its height as a decorative art form in the late 17th and early 18th centuries, its production began much earlier.[93] The introduction of tin glazed earthenwares is generally attributed to 16th-century itinerant Italian potters who gradually established themselves in France from south to north. Production began at Lyons and Rouen in the first half of the century, followed by Nevers and Paris and other centers in the second half.[94] However, the French faience industry was still comparatively young at the time forts Pentagoet and La Tour were constructed, and the ware was yet to approach its peak of popularity. The occurrence of this ware in 17th-century North America is poorly understood, partly because of the small number of French sites which have been excavated and published, but also because little attention has been paid by collectors and historians to "faience blanche," and other simple wares which were the major productions for common use.

TG3, plain faience. Although only a few fragments of plain white faience were found at Pentagoet, they represent at least four separate pieces of tableware, including a porringer or small bowl (not shown), and three vessels with distinctive handle forms (Figure 7.20*h–j* and Plate 17). In all of these pieces the paste is soft and pink or light red, and the thick tin glaze is generally smooth, free of pits, and pure white. A fifth specimen, an unusual tan colored plate rim of ambiguous stratigraphic association, is tentatively placed in this group as well (Figure 7.21*c*).

The significance of this small assemblage lies in its comparative value with specimens from Fort La Tour. Although most of the tin glazed earthenwares excavated at that site are English delftware from an 18th-century occupation, at least two of the specimens appear to be 17th-century plain faience.[95] One is some type of pouring vessel with a ledge handle embossed with a spiral design, and bears a resemblance to a handle recovered at the Denys Trading Post.[96] The second is a zoomorphic handle to a sauce boat or similar vessel, representing the long neck and head of some unidentified creature. By chance, an exact match for this unusual specimen was found in a clear Pentagoet I context (Figure 7.20*i*).[97] Surely these obscure ornamental handles must have had a common origin, and like the Saintonge buff earthenware, probably passed through the port of La Rochelle.

TG4, polychrome faience. Two specimens of decorated faience occur, of which one is a distinctive polychrome bowl or porringer, painted on the interior with a very simple design executed with broad strokes of cobalt blue and yellow with fine lines of brown—apparently a floral motif (Figure 7.20*k* andPlate 17 left). The second, less complete specimen is similar, but is decorated on the exterior. These bowls were found in association with Pentagoet III (1670-1674), and it is therefore not surprising that no comparable specimens have been recovered at Fort La Tour. No close parallel has been found elsewhere, but a grossly similar decoration was noted on a later specimen from Louisbourg, which has been attributed tentatively to a pottery at Sceaux, upstream from Paris on the Seine River.[98]

Stonewares

Stoneware vessels are not numerous at Pentagoet, making up just 6.5% of the ceramic assemblage. Yet they include not only one of the better known products of the Rhineland, which was popular in late medieval Europe and was widely exported to European colonies in the 17th and

18th centuries, but also some apparent imitations and regional products. Conspicuously absent, however, is the chocolate brown stoneware from Lower Normandy which is found in great abundance on cod fishing stations of 16th and 17th centuries in Newfoundland and Labrador—brought there by the Norman and Breton fishermen from Granville and St Malo.[99] These dark Norman products, together with pale buff stonewares from Beauvais, characterize two of Champlain's settlements: the brief settlement of Ste. Croix in Maine in 1604-1605, and the subsequent habitation in Québec.[100] As Champlain was supplied from Honfleur, the presence of Norman and Beauvaisis stoneware is to be expected. Only a single sherd of each of these wares was recovered at Fort La Tour, however, reaffirming that like Pentagoet, it was dependent primarily on supplies from La Rochelle.[101]

Unglazed or Partially Glazed

SW1. An unidentified, gray bodied stoneware is represented by a few small rimsherds found in Pentagoet I contexts (Figure 7.22). This plain, unglazed ware occurs only as isolated fragments none of which cross mend. Grossly similar rim profiles in unglazed gray bodied and buff bodied stonewares were found at La Place Royale and at Champlain's Habitation, where they have been described as called "pots à conserves," attributed to the Loire valley and the region of Beauvais.[102] The Pentagoet specimens, however, are somewhat larger; the rims are everted rather than straight, and may represent some other vessel form.

Saltglazed

SW2, Rhenish-like. Surprisingly, the Pentagoet assemblage has no examples of the well known gray bodied Rhenish stonewares generally referred to as Westerwald, and commonly found on English colonial sites. In its place is a buff bodied stoneware, SW2, which in every other respect resembles the Westerwald product. The sole item recovered at Pentagoet in this ware was a rather large, globose drinking vessel found scattered through the Pentagoet III rubble (Figure 7.23 and Plate 18). Except for the decidedly buff or beige color of the paste, the specimen resembles closely the mugs portrayed in many familiar genre paintings of the 17th century, particularly *The Millkmaid*, by the Dutch artist Jan Vermeer, painted c. 1660, and the contemporary *Benediction* by Nicolaes Maes (1634-1693).[103] The entire body is covered with sprig molded "rosettes," which in this case resemble stylized daisies. As with their Westerwald counterparts, the area in between the rosettes is painted with cobalt blue. The source of the SW2 variety is unknown, but it is clear that the French potters—or more accurately Walloon potters of Bouffioux, Châtelet, or Pont-de-Loup—did produce stonewares which were very similar to the better known Rhenish products.[104] The suspected Low Countries origin of this stoneware is also suggested by its presence at Fort Orange and two related 17th-century Dutch sites near Albany, New York.[105]

Although no comparable buff bodied stoneware has been reported from Fort La Tour, at least eleven vessels of this general type have been found in Nova Scotia at the early 18th-century Acadian settlement of Belleisle (1685–1720), three of which have sprig molded rosettes.[106] Yet a rosette-decorated jug from the Denys Trading Post is a standard gray bodied Westerwald product, indicating that the Acadians had access to both buff bodied Rhenish-like and gray bodied Westerwald stonewares.[107] This latter variety is typical of English sites in Maine, including Damariscove Island and the Clarke and Lake Company.[108] At Saint-Castin's Habitation, where trade with the English was commonplace, the stoneware is also gray bodied Westerwald. Thus there may be a useful distinction between stoneware mugs and jugs circulating in French and English trading spheres of the Northeast during the 17th and early 18th centuries. French sites

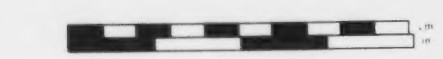


Figure 7.22 Rims of unglazed, gray-bodied stoneware, SW1, of unidentified form and source: *a*, no. 6421; *b*, no. 11501.

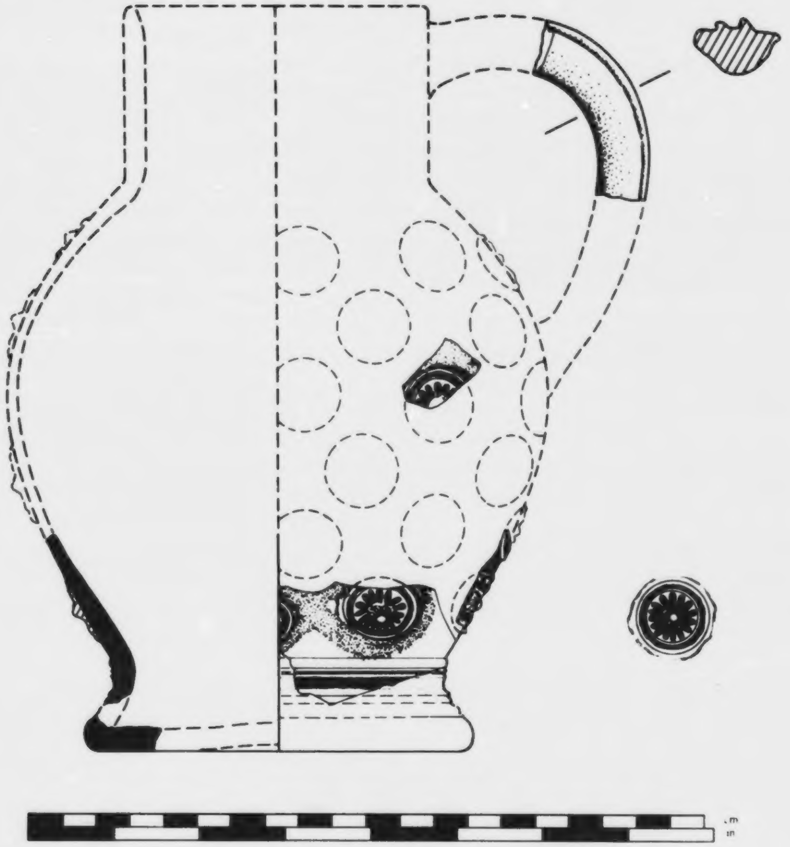


Figure 7.23 Beige stoneware mug or tankard with ornamented with sprig-molded daisies or rosettes, accented with cobalt blue paint, SW2, no. 960.

seem to include both buff and gray bodied products, while English sites are restricted to gray bodied Westerwald stonewares.

SW3, gray bodied Frechen bartmanns. Variously known as bartmanns, graybeards, or Bellarmines, these were very popular vessels, used from the second quarter of the 16th throughout the 17th century for serving alcoholic beverages. Gradually, towards the end of this period, they were replaced by glass bottles. Bartmanns commonly occur on early colonial sites, although seldom in large numbers. Manufactured in a range of sizes and forms, these pear or gourd-shaped jugs carry a stamped or sprig molded bearded face on the neck of the vessel opposite the handle. Depending on the size of the bottle, the belly is further ornamented with from one to three medallions, armorial crests, sunbursts, or circular fans of feathers. The paste of these vessels is gray, and is covered on all but the foot by a dark brown, iron-rich slip, which often becomes mottled on firing. In addition, the entire vessel is salt glazed, although the coating is quite thin on the interior.

While it is known that bartmanns were made by the Fulham potters in England and by other potteries, the most widely distributed versions are generally attributed to the original Rhenish manufacturers, first practicing at Cologne and later at Frechen.[109] This seems to be the origin of the fragments from six bartmanns found at Pentagoet (Figure 7.24 and Plate 19). These were all found in a midden dating to Pentagoet I, and were probably manufactured between c. 1620 and c. 1635, or perhaps somewhat later.[110]

Unfortunately, not one of the masks which characterize this ware has been recovered at Pentagoet, so it is impossible to use the stylistic chronology developed by M. R. Holmes, Ivor Noel Hume and others to identify these pieces.[111] However, coats of arms or heraldic crests from the molded medallions of three separate small bartmanns were found, and these have proven to be quite informative. Although these specimens are not cast from the same molds as any known medallions, they have all been identified on the basis of very similar specimens, the best dated of which come from cargoes from the wrecks of two Dutch merchant vessels which traded in the East Indies.[112]

One medallion from Pentagoet bears the triple crown of the city of Cologne (Figure 7.24*d*).[113] This city was a center

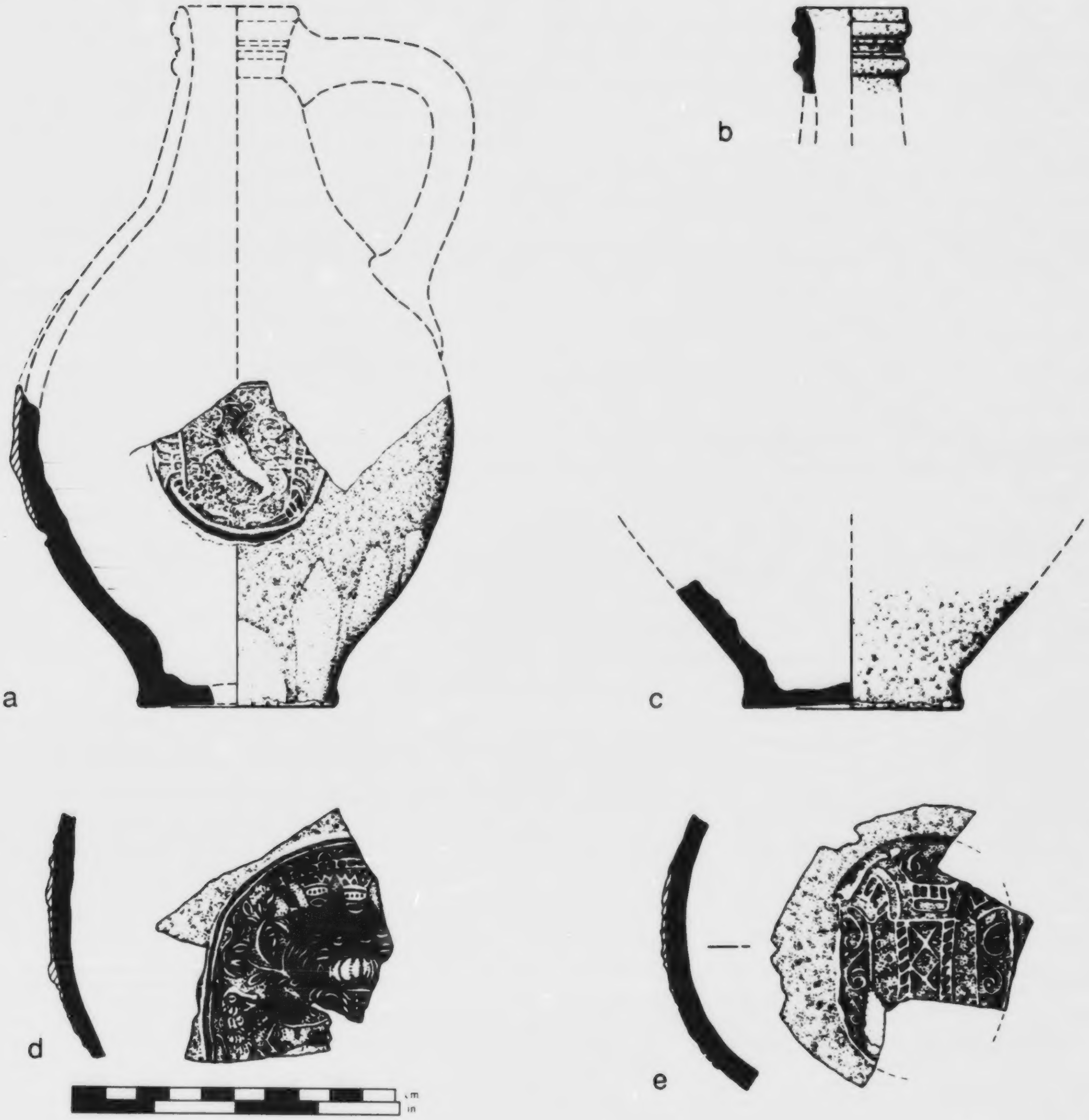


Figure 7.24 Bartmann or Bellarmine jug fragments, Frechen, SW3. *a*, Pear shaped jug with a rampant lion on a medallion, probably representing the House of Nassau, no. 6540; *b*, cordoned neck fragment, no. 7463; *c*, base, no. 10301; *d*, coat of arms of Cologne accented with a splotch of dark cobalt blue, no. 8017; *e*, coat of arms of Amsterdam, no. 6555, bearing the date "16--."

of bartmann manufacture in the 16th century, although all the Pentagoet specimens are more likely later Frechen products. Cologne was just one of many commercial centers frequently honored on Bartmanns.[114] A near match for this piece was recovered from the Dutch Eastindiaman *Batavia*, which was wrecked near the western coast of Australia in 1629.[115]

Another municipal coat of arms represented in the Pentagoet collection of was the city of Amsterdam, a representation which is also rather common on bartmanns.[116] The fragment preserved bears the partial, if not very informative, date "16– –" (Figure 7.24*e*). Otherwise this medallion is similar to undated specimens found on the *Batavia*, and also on the wreck of the *Witte Leeuw*, which went down just of the island of St. Helena in the south Atlantic in 1613 on her homeward journey from Java.[117]

The most complete bartmann at Pentagoet bears a medallion that appears to represent the family crest of the house of Nassau (Figure 7.24*a*). The rampant lion, a common device, is unusual in that it faces left with the tail curling outward, as is the case for the Nassau family crest.[118] It was under Maurice of Nassau that Netherlands won independence from Spain in 1609, and his descendants rule the Netherlands and Luxembourg to this day. It should not be surprising, therefore, that this crest was popular on bartmanns traded to the Netherlands after 1609. This same representation of the rampant lion occurs frequently in combination with other devices on medallions from the *Witte Leeuw* and *Batavia*, representing the princes of Orange-Nassau.[119]

It is clear, then, that all three medallions represent either Dutch insignia or insignia which were commonplace on bartmanns carried by Dutch merchantmen. Not surprisingly, Frechen bottles with similar Dutch insignia have been found at Fort Orange and nearby Dutch sites.[120] This contrasts with the Rhenish bartmanns exported to England, for example, which often have crests representing English monarchs.[121] Pentagoet's supply of stoneware bottles, therefore, probably came through French-Dutch channels rather than through English intermediaries.

At least three Frechen bartmanns, generally similar to those at Pentagoet, have been recovered from Champlain's Habitation where they were burned in a fire which ravaged the settlement in 1632; the medallions, unfortunately, have yet to be identified.[122] A large fragment from a pear-shaped bartmann was also recovered at Fort La Tour, showing both the medallion and the lower portion of the mask. This a is a somewhat later form, having a circular fan of feathers as a medallion motif rather than a coat of arms, and has been assigned a date of 1640 to 1660 on the basis of mask form.[123] Interestingly, the stylized medallion on this specimen is nearly identical to a complete but uncataloged bartmann collected by the late Castine historian Dr. George A. Wheeler (Plate 20). As far as can be determined, Wheeler confined his archaeological interests to Fort Pentagoet, and it is likely that this bartmann came from this site. Cracks in the jug still contain a dark muck as if it had once been deposited in the well of the Magazine, excavated at Wheeler's behest in 1892.[124]

Interpretation

Pentagoet's two major French occupations span a critical period in the development of earthenwares from Saintonge and southwest France. Pentagoet I (1635–1654) shows the traditional buff bodied wares which were produced for export—fine polychrome painted and relief molded ceramics—for which the Saintonge was famous during the 16th and early 17th centuries. Also present were a few green glazed forms produced in a buff body, especially apothecary jars and other small pots. These were accompanied in larger quantity by more common coarse earthenware storage and food preparation forms—single and doublehandled jars, and pots with pouring lips—the site's principal ceramics. This pattern of imports from La Rochelle was not unique to Pentagoet, but was confirmed in substantial detail by the contemporary occupation at Fort La Tour (1631–1645).

Pentagoet III (1670–1674) saw the introduction of new forms at a time when La Rochelle was beset with major religious and economic restrictions: the persecution of the Huguenots and the effects of embargoes between England and France. The fancy, specialized tablewares—chafing dishes, barrel costrels and the like—disappeared, and were replaced, in part, with pure green glazed tablewares, some of them ornamented with thumb impressed decoration and other decorative modeling. Generally, however, the later assemblage was characterized by cruder earthenwares—single and double handled jars glazed only about the rim with copper green. To these was added a new and distinctive form, the marmite, or double handled, round bottomed, cooking vessel, also covered on the rim only, but with a clear or pale yellow lead glaze.[125]

This Pentagoet III assemblage gives a glimpse of some of the precursors to the ceramics produced at Saintonge when the industry was reborn in the early 18th century. The open forms, which characterize later Saintonge production, were as yet quite rare, and decoration was restricted to covering the vessel with a plain, bright green glaze. The fabric used in all forms was still the traditional buff bodied earthenware, rather than the white slipped redware of later production. Even the new marmite, which later became extremely popular as a lead glazed redware, appears in a buff bodied form. Clearly the strategy of covering red or pink firing clays with white slip, which allowed many more potters to work the clays of Saintonge and facilitated the rebirth of the industry, had yet to become popular.

Of any single grouping of artifacts at Pentagoet, ceramics give the clearest fingerprint of outside supply sources. The pottery assemblage, dominated by buff bodied earthenwares from southwestern France, is inherently distinct from English assemblages of the same period. Because of the Navigation Acts and related import-export restrictions, the ceramics recovered on English sites settled after 1650 are comparatively homogeneous. Such legislation limited colonial commerce to those products specifically authorized for trade, and required that they clear English ports and be transported in English bottoms; French ceramics were ostensibly excluded from this trading sphere. Even contemporary English sites near the Anglo-Acadian frontier, such as Pemaquid and the Clarke and Lake Company, have few ceramic types in common with Pentagoet, suggesting that there was little interaction locally in the exchange of these durable goods.[126]

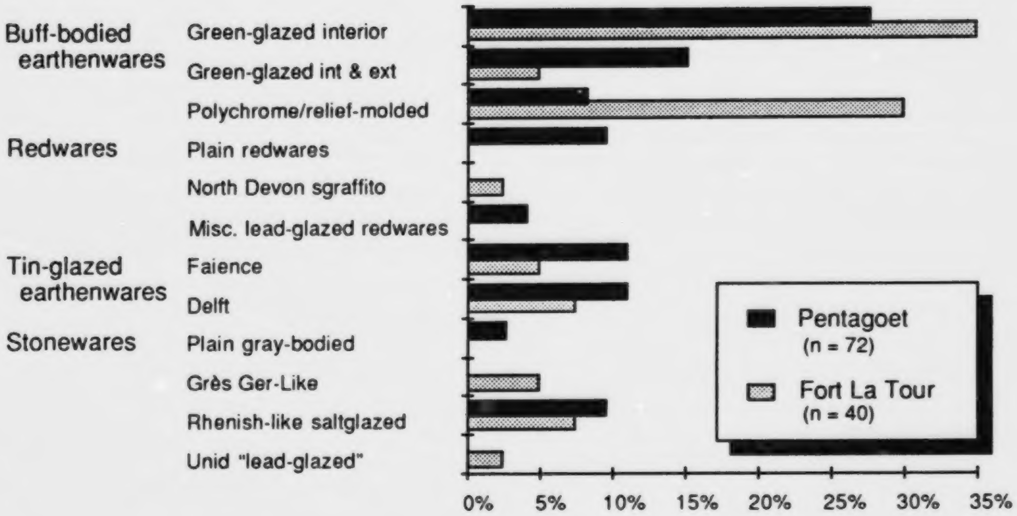


Figure 7.25 Relative frequencies of ceramic types from Fort Pentagoet compared to a contemporary assemblage from Fort La Tour in Saint John, New Brunswick (1631–1645). The Pentagoet data have been corrected to reflect only those types known to have been in use during Pentagoet I (1635–1654).

Those few European ceramics which are shared by Pentagoet and its 17th-century English counterparts in Maine often have subtle differences betraying separate trade connections. Pentagoet's bartmanns, for example, with their Dutch insignia designed for Dutch markets, surely came through a Dutch intermediary. This is probably also true for the delftware at the site and the aberrant Westerwald-like beige stoneware for which a Walloon origin has been suggested. In fact, Dutch products are common in the artifact assemblages both from Pentagoet I and Pentagoet III, ranging from firearms to clay tobacco pipes and cloth seals. However there is no evidence to suggest that the trade involved Dutch merchants in the New World; rather it was probably a by-product of the wine trade conducted between southwestern France and the Low Countries. The goods probably arrived at Pentagoet via La Rochelle merchants such as Emmanuel Le Borgne and Henri Brunet.

Whereas the imported material culture on English colonial sites after c. 1650 tends to mask the regional origins of individual settlements, this is not as true of French colonial establishments. Variations in ceramic types between different French sites are more likely reflect the wide regional variation in idea pools. The Pentagoet assemblage, therefore, is also clearly distinguished from certain other French colonial sites which can differ as much from one another as from English sites. The Pentagoet ceramics have little in common, for example, with those from Champlain's brief settlement at Ste. Croix or the cod fishing stations along the Straits of Belle-Isle in Newfoundland, Labrador, and Québec, which are dominated by stonewares from Lower Normandy—presumably supplied through the ports of Honfleur, St. Malo, and Granville.

Remarkably, however, the makeup of the Pentagoet ceramic assemblage is very similar to certain other French colonial sites, particularly Fort La Tour (Appendix F, Table F.1).[127] Most of the differences in types and relative proportion of wares can be accounted for by the broader time range of occupations at Pentagoet. For example, the collection from Pentagoet, includes many RW4 North Devon Baluster jars associated with the Penobscot Trading Post and YG1 double-handled cooking vessels, which seem to be confined to Pentagoet III. If these and other types which are not known to have been in use in Pentagoet I are eliminated from the sample, the comparison between the two sites becomes quite striking (Figure 7.26).[128]

Thus the two sites share a distinctive set of types which have a relatively limited international distribution, and which reveal some of the common characteristics of their progenitors. The similarity in wares reflects similar sources of supply, their respective merchant-agents in La Rochelle. However the specific selections of tableware for use on the frontier, particularly the finer green glazed and polychrome products of Saintonge, speaks to their common needs as well. It was evidently very important both to Charles d'Aulnay and his arch rival Charles de la Tour that they maintain appearances commeasurate with their perceived stations in life. This meant keeping their food warm with colorful chafing dishes and serving brandy from elegantly decorated barrel costrels suited to grace the table. That d'Aulnay and La Tour shared these same social aspirations makes their personal rivalry is all the more understandable. The apparent incongruity of this formality in the living conditions of frontier Acadia, where meals might as well have been served on the tops of barrels, demands a re-examination of the actual requirements of maintaining a 17th-century household in the wilderness—an issue which will be considered repeatedly in the following chapters.

Finally, it has become fashionable to characterize the underpopulated settlements of Acadia as under the "economic stranglehold" of Boston after 1654. Citing the remoteness of Acadia from the larger population centers of New and Old France, and the frequent neglect of these settlements by their suppliers, the proponents of this view emphasize the trade and contractual arrangements negotiated between the early Acadians and Massachusetts merchants. According to this interpretation, the starving Acadian colony was chronically dependent on Boston even for food.[129] To the extent that this condition should be reflected by the importation of ceramics, the case is very weak. Ceramics of the supposed period of English occupation and control, Pentagoet II (1654-1670) have escaped detection entirely. In Pentagoet III (1670-1674) a single North Devon gravel tempered crock and a few other local redware vessel fragments were found adrift in a sea of French earthenwares.[130]

Notes to Chapter 7: Ceramics

1 Residual sherds from all 17th-century periods were also found upon and within the rubble, the result of salvage efforts and brief episodes of re-use of the site in the 17th and 18th centuries, but these displaced finds were in the minority. Ceramics from the 18th-century Staples homestead were confined to a portion of Pentagoet's Barracks and Parade ground, and, for the most part, were easily distinguished from the 17th-century remains.

2 A similar argument can be used against quantifying this particular collection by weight of sherds in each category. Again the large, thick, North Devon jar would be grossly over-represented in comparison to its thinner, more gracile, French counterparts.

3 J. P. Allan, *Medieval and Post-Medieval Finds from Exeter, Exeter Archaeological Reports*, vol. 3, Exeter City Council and The University of Exeter, (Exeter, 1984), p. 100. Vessel counts become more difficult and the results less reliable with increasing collection size and fragmentation because proportionately fewer crossmends are possible.

4 "Copper green" in this sense means the color of some salt or oxide of copper, generally a bright green—not the green of tarnished copper.

5 Jean Chapelot, pers. comm., November, 1984.

6 Cf. J. G. Hurst, "Sixteenth- and Seventeenth-Century Imported Pottery from the Saintonge," in I. V. Evison, H. Hodges, and J. G. Hurst, eds., *Medieval Pottery from Excavations*, (London, 1974). Also Kenneth J. Barton, "Coarse Earthenwares from the Fortress of Louisbourg," *History and Archaeology* no. 55, Parks Canada, (Ottawa, 1981), pp. 3–82.

7 Jean Chapelot *et al.*, *Potiers de Saintonge—Huit Siècles d'Artisinat Rural*, Musée National des Arts et Traditions Populaires [exhibition catalogue], (1975).

8 Jean Chapelot *et al.*, *Potiers de Saintonge*, pp. 119–121.

9 Jean Chapelot, "The Saintonge Pottery Industry in the Later Middle Ages," in Peter Davey and Richard Hodges, eds., *Ceramics and Trade*, University of Sheffield, (Sheffield, 1983), p. 53. Jean Chapelot *et al.*, *Potiers de Saintonge*, pp. 25–26.

10 J. P. Allan, *Medieval and Post-Medieval Finds from Exeter*, p. 111.

11 Jean Chapelot *et al.*, *Potiers de Saintonge*, p. 25.

12 Alison Grant, *North Devon Pottery: the Seventeenth Century*, University of Exeter, (Exeter, 1983), p. 17.

13 Alison Grant, *North Devon Pottery*, pp. 63–76. Lorna Weatherill, *The Pottery Trade and North Staffordshire, 1660–1760*, Augustus M. Kelley, (New York, 1971), pp. 145–146.

14 J. P. Allan, *Medieval and Post-Medieval Finds from Exeter*, pp. 100–101.

15 Similar forms are shown in a 17th-century kitchen painted by Velasquez, reproduced in Fernand Braudel, *The Structures of Everyday Life*, Harper and Row, (New York, 1985), p. 231.

16 These findings are based on recent research by Marc Lavoie, pers. comm., April, 1986.

17 Both slipground and naturally white fired pastes were found at Louisbourg, but the latter were certainly in the minority, and not as pure as the buff bodied products of the previous century. Type L1 comprises the basic slipground wares of Louisbourg, according to the typology of Kenneth J. Barton, "Coarse Earthenwares from the Fortress of Louisbourg," pp. 9–10. The same source records a "Saintonge green-glazed white fabric ware," Type L2, in which the paste is creamy buff to pale pink. This second ware is the principal ware found in a 1760 shipwreck, a casualty the Battle of the Restigouche, recorded by Kenneth J. Barton as "Type 1" in "The Western European Coarse Earthenwares from the Wreck of the Machault," *Canadian Historic Sites: Occasional Papers in Archaeology and History*, no. 16, Parks Canada, (Ottawa, 1977), pp. 45–72.

18 Marcel Giraud, *A History of French Louisiana*, vol. 1, Louisiana State University Press, (Baton Rouge, 1974); Jeffrey P. Brain, *Tunica Treasure*, The Peabody Museum of Archaeology and Ethnology, (Cambridge, 1979).

19 Marc C. Lavoie, "Belleisle Ceramics: Coarse Earthenwares," (notes on file, University of Maine Historical Archaeology Laboratory, 1985). Kenneth J. Barton, "Coarse Earthenwares from the Fortress of Louisbourg," pp. 3–82. Kenneth J. Barton, "The Western European Coarse Earthenwares from the Wreck of the Machault." Marcel Moussette, "Les Collections Archéologiques de la Place Royal: Les Terres Cuites Grossières des latrines des maisons Estèbe et Boisseau," *Dossier 51*, Ministère des Affaires Culturelles, (Québec, 1982).

20 These are the equivalent of TCG group 1 in Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec: étude de la collection archéologique (1976–1980)*, Dossiers 58, Les Publications du Québec, (Québec, 1985), pp. 220–221.

21 Jacob W. Gruber, "The French Settlements on St. Croix Island, Maine: Excavations for the National Park Service 1968–1969." These are the same groups of stonewares as have been described in detail for la Place Royale in Québec by Louise Décarie-Audet, "Les Collections Archéologiques de la Place Royale: Le Grès Français," *Dossier 46*, Ministère des Affaires Culturelles, (Québec, 1979).

22 With the cooperation of Gérard Gusset and Parks Canada, Alaric Faulkner was able to examine the Red Bay ceramic collection briefly in Ottawa in October of 1985.

23 Jean Chapelot, pers. comm., March, 1985.

24 Louise Décarie-Audet, "Les Collections Archéologiques de la Place Royale: Le Grès Français,' Figure 10.

25 Jean Chapelot et al., *Potiers de Saintonge*, pp. 67–69, no. 217.

26 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick, Canada 1631–c.1850 A.D.," (Ph.D. thesis, Harvard University, 1965), p. 364 and Plate 110.

27 Jean Chapelot *et al.*, *Potiers de Saintonge*, p. 68.

28 Françoise Niellon, pers. comm., April 2, 1986.

29 Jean Chapelot, "Fouilles Sous Marines à Saint Malo," *Les Dossiers du Centre Régional Archéologique d'Alet*, numéro spécial, (Alet, 1978) Plate 4(38). A similarly decorated specimen attributed to the Saintonge has also been found in excavations at Exeter in western England and dated "post-16th century." J. P. Allan, *Medieval and Post-Medieval Finds from Exeter*, p.111 and Figure 96(2176).

30 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," p. 365 and Plates 114 and 115. Marc Lavoie, pers. comm., April, 1986.

31 Françoise Niellon, pers. comm., April 2, 1986. Denise Hanson, pers. comm., December, 1985.

32 Denise Hanson, pers. comm., December, 1985.

33 "Letter of Henri Brunet to his sister, Boston, le 4^e Fevrier, 1675," Collection Clairambault, PAC, MG7 I A5 vol. 106, no. 864, p. 69.

34 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," Figure 89(19). Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, Figure 26(10) and Figure 36(6). Denise Hanson, pers. comm., December, 1985.

35 Jean Chapelot *et al.*, *Potiers de Saintonge*, p. 79 no. 257. This specimen, unlike the Pentagoet versions, is apparently glazed over a white slip background.

36 One of the authors has photographed a complete yellow glazed vessel in the Louisbourg collection with a similar form of rim decoration. Apparently, however, it has yet to be published. Marcel Moussette, "Les Collections Archéologiques de la Place Royal: Les Terres Cuites Grossières des Latrines des Maisons Estèbe et Boisseau," pp. 53–56 and p. 161(107–109).

37 Jean Chapelot, "Fouilles Sous Marines à Saint Malo," p. 128, no. 58.

38 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," Plate 117. Denise Hanson, pers. comm., December, 1985.

39 J. G. Hurst, "Sixteenth- and Seventeenth-Century Imported Pottery from the Saintonge" p. 246, Figure 9(51–52). These specimens come from the Castle Street excavations in Plymouth, England. See also Graham Fairclough, "Plymouth Excavations: St Andrews Street: 1968," *Plymouth Museum Archaeological Series* no. 2, (Plymouth, 1976), Figure 37(419, 422).

40 Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec:* Figure 21(5).

41 John Dunton, "French Ceramics of the 18th Century Found in New France," *Cahiers de la Céramique du Verre et des Arts du Feu*, (1971), nos. 48/49, pp.12–25, Figure 13.

42 These were quite popular, for example, in Plymouth, England, as shown in Cynthia Gaskell-Brown, "Plymouth Excavations: Castle Street The Pottery," *Plymouth Museum Archaeological Series*, No. 1, (Plymouth, 1979), figs. 19 and 20(109–133).

43 Jean Chapelot *et al.*, *Potiers de Saintonge*, pp. 67–83.

44 Jean Chapelot *et al.*, *Potiers de Saintonge*, p. 69(223), and p. 37. Chapelot notes further that this general decorative technique was practiced in the Mediterranean and North Africa at least by the 10th century.

45 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," Plates 118–119.

46 Jeffrey P. Brain, "Tunica Treasure", pp. 54, 56. Archaeologists have described these vessels as cooking pots, storage pots, small chamber pots and large mugs, indicating to the skeptic that their use is not at all understood.

47 Jean Chapelot *et al.*, *Potiers de Saintonge*, p. 37, no 40. Cynthia Gaskell Brown, "Plymouth Excavations: Castle Street The Pottery," Figure 21(143).

48 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," Plate 121, no. 1. Denise Hanson, pers. comm., December, 1985.

49 J. G. Hurst, "Sixteenth- and Seventeenth-Century Imported Pottery from the Saintonge," Figure 9(38, 51) and Figure 10.

50 Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, pp. 227–230, Table 37 and Figure 34(13). Jean Chapelot, pers. comm. November, 1984.

51 Barka regards this ceramic as a "pleasing polychrome." Norman Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," p. 366. Upon viewing the masked faces, the Pentagoet crew was torn between the suggested field names "clown ware" and "circus ware."

52 Jean Chapelot *et al.*. *Potiers de Saintonge*, p. 37, no 40.

53 Françoise Niellon, pers. comm., April 2, 1986. Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, pp. 84, 85 and Figure 15. This might have belonged, for example, to one of the four potters known to have immigrated to New France between 1655 and 1688 according to Jacques Langlois, "Répertoire des Artisans-Potiers Québecois 1655–1916" *Dossier 37* Ministère des Affaires Culturelles, (Québec, 1978), p. 8.

54 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," Plates 120 and 121.

55 Jean Chapelot, pers. comm. November, 1985 and Marcel Moussette, pers. comm. September, 1985. Some 12 of 203 sherds of 17th-century coarse earthenwares were polychrome relief molded Saintonge, while as many as 128 sherds were of other Saintonge or Saintonge-like types. See also Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, Table 37.

56 Françoise Niellon, pers. comm., April 2, 1986.

57 Kenneth J. Barton, "Coarse Earthenwares from the Fortress of Louisbourg," Figure 11(3, 4).

58 Fernand Braudel, *The Structures of Everyday Life*, Harper and Row, (New York, 1985), p.231.

59 Jean Chapelot, "Fouilles Sous Marines à Saint Malo," p. 132 and Plate 10(73–75).

60 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," p. 364.

61 Denise Hanson, pers. comm., December, 1985. Françoise Niellon, pers. comm., April 2, 1986.

62 Judith Beattie and Bernard Pothier, "The Battle of the Restigouche," *Canadian Historic Sites: Occasional Papers in Archaeology and History*, no. 16, Parks Canada, (Ottawa, 1977), pp. 5–34. Kenneth J. Barton, "The Western European Coarse Earthenwares from the Wreck of the Machault," pp. 58–59 and 67.

63 Kenneth J. Barton, "Coarse Earthenwares from the Fortress of Louisbourg," p. 21. Barton refers to the ware as type L3. John Dunton describes the glaze on this same specimen as "clear yellow to orange," in "French Ceramics of the 18th Century Found in New France," Figure 13. Clearly a standardized system of description is needed such as the Munsell Color Chart!

64 Nicole Genêt, "Les Collections Archéologiques de la Place Royal: La Faience," *Dossier 45*, (Ministère des Affaires Culturelles, Québec, 1980), Figure 25.

65 Marcel Moussette "Les Collections Archéologiques de la Place Royal: Les Terres Cuites Grossières des latrines des maisons Estèbe et Boisseau," pp. 53 and 160, no. 106.

66 Jean Chapelot *et al.*, *Potiers de Saintonge*, pp. 68–69, no. 219.

67 Specimens which were very similar to OG1 ware were exhibited at a pottery workshop at the annual meetings of the Council for Northeast Historical Archaeology held in Amherst, Massachusetts in October, 1982. No further information was given.

68 Cynthia Gaskell-Brown, "Plymouth Excavations: Castle Street The Pottery," p. 18.

69 Henry Miller, pers. comm., January, 1985. Denise Han-

son, pers. comm., December, 1985.

70 Ivor Noel Hume, *A Guide to Artifacts of Colonial America*, Knopf, (New York, 1970), pp. 132–137.

71 Alison Grant, *North Devon Pottery*, p. 131.

72 A spectacular collection of North Devon Sgraffito has been excavated at Jamestown. John L. Cotter, "Archaeological Excavations at Jamestown, Virginia," *Archaeological Research Series*, no. 4, (Washington, 1958).

73 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," p. 370 and Plate 122. Though Barka surmises that the design was unusual for North Devon Sgraffito and might therefore represent a Beauvais product, the authors possess an identical specimen from a pottery waster in Barnstaple.

74 These collections were observed by the authors at the Exeter Museum in 1985, courtesy of Mr. J. P. Allan.

75 Alison Grant, *North Devon Pottery*, p. 122.

76 Alison Grant, *North Devon Pottery*, p. 48 and Appendix A, pp. 136–137.

77 Alison Grant, *North Devon Pottery*, pp. 136–137, no. 10, and Plate 4. Cynthia Gaskell-Brown, "Plymouth Excavations: Castle Street The Pottery," p. 17, and Figure 8(39).

78 Allan Wingood, *et al.*, *'Sea Venture': The Tempest Wreck*, Sea Venture Trust, (Bermuda, 1986), p. 13; Alan Wingood, pers. comm. January, 1985.

79 Alison Grant, *North Devon Pottery*, p. 54.

80 Ivor Noel Hume, *Martin's Hundred*, Knopf, (New York, 1982), pp. 196–198. James Deetz, pers. comm., September, 1985. A small collection of these baluster jars sherds from Richmond's Island is in the Historical Archaeology Laboratory at the University of Maine.

81 Examples of wedge-shaped clay kiln furniture, the size and shape of a gunflint, recently have been unearthed in association with baluster jars at the Plymouth Colony post of Cushnoc in Augusta, Maine. These were apparently spacers which separated items in firing; a few of them apparently fell into the pots in the unloading of the kiln, and so were subsequently shipped along with them. Leon Cranmer, pers. comm., April, 1987. Such baluster jars are not found exclusively on English sites; examples occur also occur at Champlain's Habitation in Québec along with a surprising number of other West of England products. Françoise Niellon, pers. comm., April 2, 1986. Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, Figure 49(2).

82 Thomas Bellows Wyman, *The Genealogies and Estates of Charlestown*, David Clapp and Son, (Boston, 1879), p. 309. "Charlestown Archives," ms.on file in Rare Books, Boston Public Library, vol. 2, p. 15. Lura Woodside Watkins, *Early New England Potters and Their Wares*, Harvard University Press, (Cambridge, 1950), pp. 16, 19, 20. Steven R. Pendery, pers. comm., January 30, 1986 and March 7, 1987. Unfortunately the Drinkers' Charlestown workshop is now under a major intersection.

83 Nicole Genêt, "Les Collections Archéologiques de la Place Royal: La Faience" *Dossier 45*, (Ministère des Affaires Culturelles, Québec, 1980), pp. 17–19.

84 Ivor Noel Hume, "Early English Delftware from London and Virginia," *Colonial Williamsburg Occasional Papers in Archaeology*, vol.2, University Press of Virginia, (Charlottesville, 1977), p. 104.

85 Ivor Noel Hume, *A Guide to Artifacts of Colonial America*, p. 142.

86 Ivor Noel Hume, "Early English Delftware from London and Virginia," p. 104.

87 Ivor Noel Hume, "Early English Delftware from London and Virginia," p. 1.

88 Michael Archer and Brian Morgan, *Fair as China Dishes*, International Exhibitions Foundation, (Washington, 1977), p. 15, no. 2. The ambiguity of origin is clear from its identification as "London or Netherlandish, c. 1600." Cf. Ivor Noel Hume, "Early English Delftware from London and Virginia," p. 116, no. 5, dated "1571–1600."

89 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," p. 374 and Plate 128, upper left. Denise Hanson, pers. comm., December, 1985.

90 James Deetz, "Ceramics from Plymouth," in Ian M. Quimby, (ed.) *Ceramics in America, Winterthur Museum*, (Winterthur, Delaware, 1973), p. 28.

91 At Fort La Tour the tin glazed earthenwares were all grouped together and most were identified as 18th-century English delftware—attributed to a later occupation, the Simonds, Hazen and White Trading Post, dating from 1762 into the last quarter of the 18th century. These pieces, however, appear to be 17th century in date. Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," p. 381 and Plate 128, middle row, leftmost two specimens.

92 Denise Hanson, pers. comm., December, 1985.

93 Jean-François Blanchette, *The Role of Foodways in New France, 1720–60*, History and Archaeology, no. 52, Parks Canada, (Ottawa, 1981), p. 23.

94 Arthur Lane, *French Faience*, Praeger, (New York, 1970), pp. 1–9. Giuseppe Scavizzi, Majolica, Delft and Faïence, Hamlyn, Feltham, (London, 1970), pp. 98–109.

95 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," pp. 380–382, 562 and Plate 129, nos. 3–4.

96 Denise Hanson, pers. comm., December, 1985.

97 Barka describes this handle as representing a "dog," in "Historic Sites Archaeology at Portland Point, New Brunswick," p. 382, while the Pentagoet crew opted to describe it as a brontosaurus. Whatever the animal represented, it was apparently attached to the vessel at the body and at the tip of the head, the latter connection being effected by a narrow strap of clay.

98 Jean Palardy, "Eighteenth Century French Faïence in Canada," *Cahiers de la Céramique du Verre et des Arts du Feu*, nos. 48–49, (1971), p. 30. According to Palardy, this specimen apparently used heat sensitive pigments requiring a "petit feu," or secondary firing at low temperature, while this apparently was not the case for the Pentagoet specimen.

99 Françoise Niellon, pers. comm., April 2, 1986.

100 Louise Décarie-Audet, "Les Collections Archéologiques de la Place Royale: Le Grès Français," *Dossier 46*, Ministère des Affaires Culturelles, (Québec, 1979). Jacob W. Gruber, "The French Settlements on St. Croix Island, Maine." John Cotter, "Les Premiers Établissements Français en Acadie: Sainte Croix at Port Royal," *Dossiers de l'Archéologie*, no. 27, (1978), p. 69.

101 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," pp. 373–374 and Plate 123, nos. 1–2.

102 Louise Décarie-Audet, "Les Collections Archéologiques de la Place Royale: Le Grès Français," Figures 18*a* and 26.

Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, pp. 270–272 and Figures 61–63. Note the ambiguity of the origin of the Bray region stoneware, pp. 270,271.

103 *The Benediction*, erroneously attributed to the 18th century, is illustrated by Jeffrey Brain, "Tunica Treasure," p. 55.

104 M. L. Solon, *The Ancient Arts Stoneware of the Low Countries and Germany*, vol. 2, (London, 1892), p. 127. Alexandre Brongniart, *Traité des Artes Céramiques ou des Poteries considérées dans leur Histoire, leur Pratique et leur Theorie*, vol. 2, Béchet Jeune, (Paris, 1854), pp. 223–230.

105 Ceramics researcher Charlotte Wilcoxen states that these are "unquestionably of Dutch distribution." Pers. comm., February 10, 1986.

106 Marc Lavoie, pers. comm., September, 1985, April, 1986. Unlike the Pentagoet specimen, the rosettes from Bellisle are reported to have only four petals or consist of scroll-like decorations.

107 Denise Hanson, pers. comm., December, 1985.

108 Emerson, W. Baker, *The Clarke and Lake Company: The Historical Archaeology of a Seventeenth-Century Maine Settlement*, Occasional Publications in Maine Archaeology, no. 4, Maine Historic Preservation Commission, Augusta, 1985), Plate 9*c* and Figure 8.

109 Norman Barka, pers. comm., January, 1984. M. R. Holmes, "The So-Called 'Bellarmine' Mask on Imported Rhenish Stoneware," *Antiquaries Journal*, vol. 31, (London, 1951), pp. 176, 179.

110 Ivor Noel Hume has tentatively placed their manufacture in the period 1620–1635 based on comparable material from Martin's Hundred, near Jamestown, Virginia and elsewhere (pers. comm. November, 1983). Considering their context at Pentagoet, however, they may have been manufactured somewhat later.

111 M. R. Holmes, "The So-Called 'Bellarmine' Mask on Imported Rhenish Stoneware;" Ivor Noel Hume,"German Stoneware Bellarmines—An Introduction," *Antiques*, vol. 74, no. 5, (1958), pp. 439–441.

112 Leon Cranmer, a graduate student in Historical archaeology at UMO, deserves considerable credit and thanks for identifying the Pentagoet medallions in a term paper entitled "Bartmänner," on file, Historical Archaeology Laboratory, University of Maine, Orono.

113 Arthur Charles Fox-Davies, *The Art of Heraldry: an Encyclopaedia of Armory* , Arno Press, New York, 1976, Plate CXXIV.

114 Ivor Noel Hume, *A Guide to Artifacts of Colonial America*, pp. 278–279.

115 Myra Stanbury, *Batavia* [exhibition catalogue], Department of Maritime Archaeology, Western Australian Museum, (Perth, n.d.), no. BAT 539.

116 M. R. Holmes, "The So-Called 'Bellarmine' Mask on Imported Rhenish Stoneware;" Plate XXIIIe.; Ottfried Newbecker, *Heraldry, Sources, Symbols, and Meaning*, McGraw-Hill, (New York, 1976), p. 248.

117 Myra Stanbury, *Batavia* , nos. BAT 2022–2023 and BAT 2023. C. L. van der Pijl-Ketl, ed., *The Ceramic Load of the 'Witte Leeuw,'* p. 246, lower left.

118 Jiri Louda and Michael Maclagan, *Heraldry of the Royal Families of Europe*, Clarkson N. Potter, Inc., (New York, 1981), p. 72.

119 van der Pijl-Ketl, C. L., ed., *The Ceramic Load of the 'Witte Leeuw,' 1613*, Rijksmuseum, (Amsterdam, 1982), p. 246 and illustration, lower right. Myra Stanbury, *Batavia*, nos. BAT 359B, BAT 477 and BAT 2517.

120 Charlotte Wilcoxen (pers. comm., February 10, 1986).

121 M. R. Holmes, "The So-Called 'Bellarmine' Mask on Imported Rhenish Stoneware," pp. 174–175.

122 Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec*, pp. 283, 284 and Figures 70, 71.

123 Norman F. Barka, "Historic Sites Archaeology at Portland Point, New Brunswick," p. 371 and Plate 124.

124 The Wheeler bartmann is now in the possession of one of his descendents, Margaret Bartlett of Castine.

125 The marmite is "new," at least, in Pentagoet III. The antiquity of the general form as a product of southwest France is in question.

126 Emerson W. Baker, "The Clarke and Lake Company." Helen B. Camp, *Archaeological Excavations at Pemaquid, Maine 1965–1974*, Maine State Museum, (Augusta, 1975).

127 Alaric Faulkner has re-examined Barka's collection from Fort La Tour, and has made some minor changes in this Table which differ from Barka's original classification of the ceramic types.

128 Although not all of the remaining ceramics were actually deposited in Pentagoet I (1635–1654), the resulting subset is at least a fairer sample to compare with Fort La Tour (1631–1645), which was occupied during roughly the same period.

129 Emerson W. Baker, *Acadian Sites: Comments on the Symposium, 'Acadian Settlement in the 17th Century'* presented at the annual meetings of the Society For Historical Archaeology, Boston, 1985. Rawlyk, George A., *Nova Scotia's Massachusetts*, McGill University Press, (Montreal, 1973), pp. 34, 36, 42, 43.

130 Admittedly there are many Anglo-American goods at the Fortress of Louisbourg in the 18th century, but those New England supplies reflect entirely different circumstances of a later era. Kenneth J. Barton, "Coarse Earthenwares from the Fortress of Louisbourg," pp. 49–65.

Chapter 8

Foodways

It is difficult for any settlement, even on a cosmopolitan frontier, to thrive without attaining at least some degree of self-sufficiency, a fact which was clearly evident to d'Aulnay and his military successors at Pentagoet. Previous chapters have considered some of the equipment which the garrison was capable of maintaining and manufacturing, and have discussed the sources and supply routes of many manufactured goods on which the fort depended. Foodways—food procurement, storage, preparation, serving, consumption, and waste disposal—provides another perspective for studying their settlement strategies. Here, as with maintenance and supply, the approaches to attaining self-sufficiency in subsistence were quite different in the two periods of French occupation.

The Menu

The principal evidence for the Pentagoet diet comes from the study of vertebrate faunal remains. It is based on research conducted by Dr. Arthur Spiess of the Maine Historic Preservation Commission, and Catherine Carlson, former graduate student in Quaternary Studies at the University of Maine, whose works are summarized in Appendix G.[1] The faunal data consist of samples of bone from two discrete areas representing the first and last French occupations of the fort. The earlier remains come from the midden behind d'Aulnay's house (7)—refuse which extends under the West Curtain, and so antedates its construction. This material is interpreted as food preparation and dining waste discarded by the occupants of d'Aulnay's house, and so represents Pentagoet I (1635–1654). This midden itself is very large, and the analysis undertaken is based on preliminary inspection of a representative sample of the bones.[2] The second bone assemblage comes from within the Dwelling, and although some earlier materials are surely included, the majority of this refuse is believed to have accumulated since the last major cleaning of the structure, sometime during Pentagoet III (1670–1674). Remains found in the main chamber (1.2) are thought to be largely waste from dining, while those from the cellar kitchen (1.1) appear to be refuse from food preparation. The bone count from the smaller cellar outnumbers that from the main chamber by a factor of more than two to one, indicating that during the later stages of occupation, at least, the cellar was a catch-all for garbage.

The two samples are associated with the most comfortable accommodations in the fort, and so may represent the diet of the fort's elite. At a gross taxonomic level, these middens are quite similar in makeup, and are comprised of mammal, bird, and fish bones in corresponding proportions (Figure 8.1). In both cases mammal bones are the most common, followed by bird and fish.[3] Mammals may not have been of such overwhelming importance to the actual diet, of course, because most fish, particularly cod, were split and boned at the fishery, and many of the smaller birds may have been eaten whole. But in spite of these and many other potential biases in the data, it seems that the relative importance of mammals, birds, and fish to the diet at Pentagoet did not change very much over time.

The number of genera represented by the faunal remains in both periods shows that the diet at Pentagoet was extremely varied (Figure 8.2). The garrison, or at least the elite, fed on a several types of mammals, both domestic and wild, numerous species of aquatic fowl, and common species of salt water and anadromous fish. This varied diet does not necessarily imply abundance; indeed there is evidence suggesting at least one episode of famine during the final period of occupation when the diet apparently expanded to include "starvation foods."

The composition of the faunal assemblage at Pentagoet shows it to be part of a broader French colonial subsistence pattern. Comparable data have been published recently from Champlain's Habitation in Québec. There, similar early and late samples were studied, the first from the combined phases I and II (1609–1632) and the second from phase IV (1675–1701)—periods which just bracket the construction and demolition of Fort Pentagoet. The faunal assemblages from the two sites are equally varied, and the relative proportions of mammals, birds and fish are comparable.[4] In many important ways, the faunal information from Pentagoet follows the trends discovered for Champlain's Habitation. Fish and fowl are major constituents of the dietary remains at

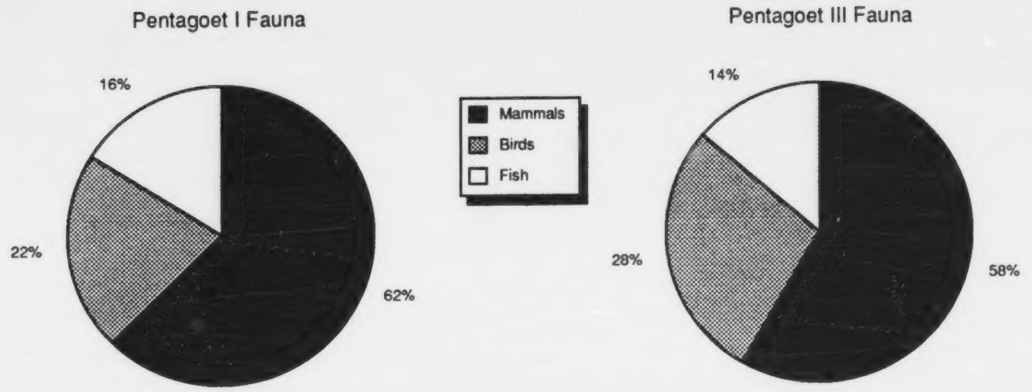


Figure 8.1 Major components of faunal samples from Pentagoet I and Pentagoet III.

both sites, and their relative importance does not change dramatically over time. Both sites demonstrate a common fascination with fowling, reflected in the bagging of all manner of local species. Similarly, local food fish appear to have been eaten fresh, in spite of the widespread availability of processed dry cod in the maritime northeast. More significantly, domestic animals are present from the beginning at both settlements, although at first they share equal importance with native fauna. In the later phases, however, wild mammals are largely replaced by domesticates.[5]

Domestic Species

It is in the changing makeup of domestic fauna that the two sites are most similar. Five of the twelve mammalian species represented at Pentagoet are domesticates, and include cattle, pigs, sheep/goat, dog, and cat. These same domesticates also occur at Champlain's Habitation with the addition of the rat. Horse remains, like horse paraphernalia, were not present in either assemblage.[6]

Swine. At both settlements, pig bones far outnumbered the other domesticates at first, but eventually were rivaled by cattle bones in the later occupations.[7] Swine proved to be especially hardy animals, well-suited for frontier settlement. In 17th-century France, pigs apparently were not common because the average peasant had little surplus to feed them. Along the Anglo-Acadian coastline, however, forage was readily available, and they multiplied rapidly.[8] Allowed to run free, rooting for clams and other food along the beach and for acorns in the woods, they became semi-feral. John Josselyn, an Englishman visiting Maine wrote in 1663 about the advantages of home-grown pork:

> "Hoggs are here innumerable, every planter hath a Heard, when they feed upon shell-fish and the like, as they do that are kept near the Sea and by the fishers stages, they tast fishie and rank; but fed with white Oak-Acorns, or Indian Corn and Pease there is not better Pork in the World."[9]

Shellfish were available on the beach right below Fort Pentagoet, and the adjacent oak groves must have provided superb fodder for the hogs as well.

Swine probably remained of greater importance in Pentagoet III than is indicated by raw element count in Figure 8.2, which shows equal percentages of pig and cattle bones. In the larger sample of "unidentifiable" remains, pig-size bones outnumber cattle-size bones by more than three to one.[10] While some of these fragmentary, pig-size bones may represent provisions of salt pork, the majority were apparently broken to release the marrow, thus reducing many of the bones to unrecognizable smithereens.

Of the minimum number of ten individual pigs present in the Pentagoet III midden, five were in the age range of six months to two years, while the other five were fully mature animals. The range in ages from piglets to juveniles to fully adult stock suggests that the garrison maintained no fixed schedule for slaughter, but killed these animals as the need arose, and as they grew sickly or past their prime. Pig longbones show evidence of having been chopped and sliced into ham sections, as ax cuts appear both near the head and at the distal end of the femur. Vertebrae were split sagittally with a cleaver, and similar marks appear on the proximal ends of ribs, showing cleavage parallel to the spine rather than across it. Thus the trunk of the animal was reduced to racks of ribs rather than chops, as pork is often processed today.

Cattle. At first, few cattle bones show up in the faunal remains from either site, even though they were introduced at Champlain's Habitation by 1609.[11] Yet in both cases they become numerous in the samples from the later occupations. Unlike the semi-feral hogs, the cattle required a substantial "out house" at Pentagoet some twenty by eight paces in size, located about thirty or forty paces west of the fort on the other side of the stream.[12] Again, the age range of the

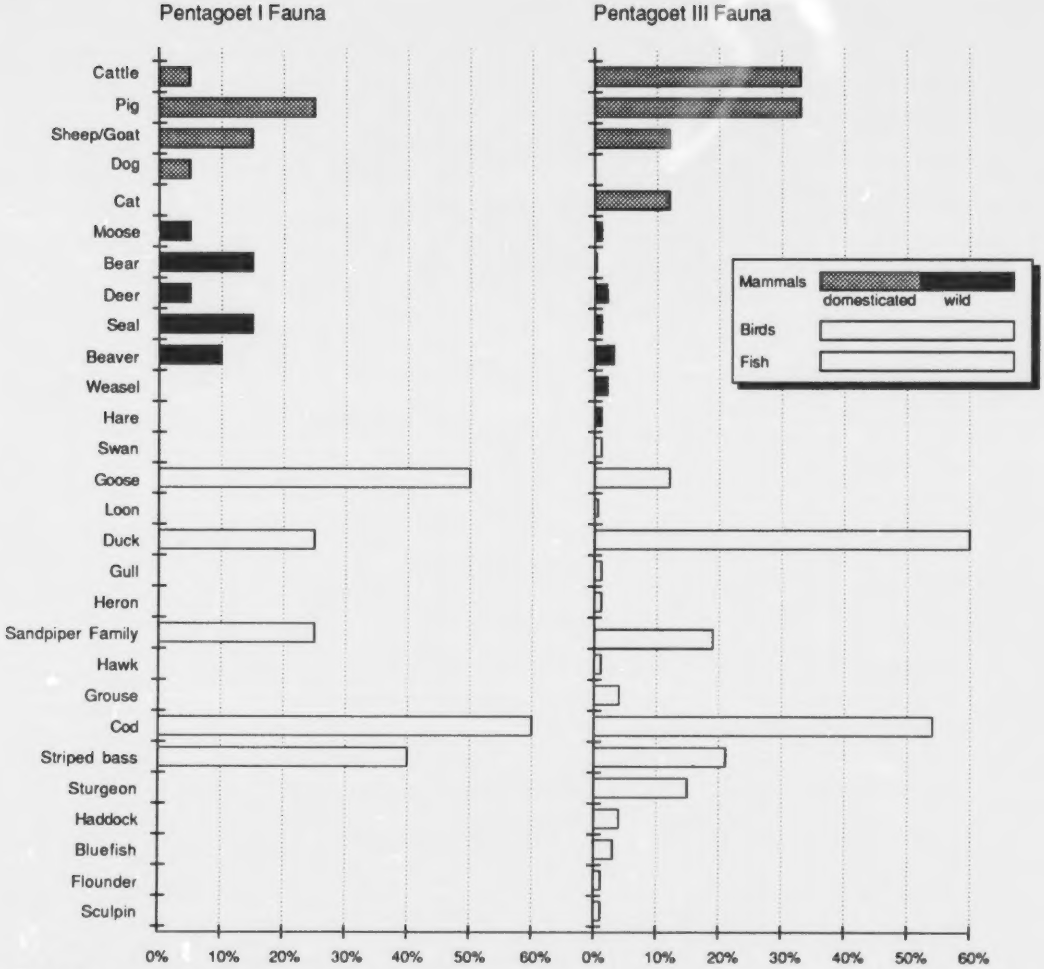


Figure 8.2 Diagnostic faunal remains from Pentagoet I and Pentagoet III. Percentages have been computed separately for mammals, birds and fish, and are based on uncorrected numbers of identifiable specimens.

animals indicates that these individuals were not slaughtered systematically; of five individuals, one was juvenile, three were sub-adults, and one was fully mature. This pattern suggests that these animals were kept more for service as traction or dairy animals than for meat production.

Cattle were commonly ax-butchered, the bones often chopped or sliced part way through with an ax or cleaver, and then snapped apart. Ribs, the most common elements found, were chopped and broken into short sections 2 cm to 15 cm in length. Similarly, meat was chopped from a section of scapula, and lower leg bones were partially cut through and broken, as if to fit into the pot. As was the case for pig remains, the long bone fragments of cattle were split as if to release the marrow.

The large size of many of the pieces suggests that this was probably fresh meat, rather than salted beef shipped in a barrel, but the cuts of meat represented are far from choice by modern standards. In addition to rib, scapula, and legbone scraps, skull fragments and maxillary teeth are common, giving the impression that these remains are principally waste products from butchering and food preparation debris, rather than from dining. The case is ambiguous, however, as calves heads were commonly served at the table in Europe until recently—the brains extracted, prepared with a sauce, and served as a side dish.[13]

Sheep. The term "sheep/goat" does not refer to some form of domestic pushmi-pullyu, as might be supposed, but is rather an acknowledgment by zooarchaeologists that fragmentary remains from the post-cranial skeleton of these two animals are extremely difficult to distinguish. Documents from Québec indicate that by 1661 approximately fifty sheep were imported annually. By contrast, just a few goats, together with asses, were introduced in 1667, and neither of the latter two species were able to adapt to their new surroundings. In all probability the Pentagoet sheep/goats were sheep.[14]

Sheep are second only to swine in the sample from Pentagoet I, and their remains were probably from local stock, rather than from pickled ship's provisions. Sheep were undoubtedly raised at the fort for mutton rather than for wool, and at first glance it would appear that they were among the livestock kept by d'Aulnay at the fort. But mutton was not as commonly eaten in France as in England, where meat was relatively plentiful and mutton was a staple.[15] The pattern at Champlain's Habitation, where sheep are rare in samples from all periods, is probably more typical of French animal husbandry. Remains from the final occupation at Pentagoet are in keeping with this pattern, as sheep remains are the least numerous of the domestic mammals.

Dogs and cats. A few fragments of what appear to be domestic dog remains have been recognized in the Pentagoet I midden and in the fauna from Champlain's Habitation. Dogs, of course, were used by the Indians for hunting, one explanation proposed for their presence in Québec. At both sites, however, they may have been imported from France for use as watchdogs and as couriers.[16]

Far more intriguing is the appearance of domestic cat bones at Pentagoet. While none have yet been noted from Pentagoet I, they were recovered from the Pentagoet III floor in the cellar kitchen of the Dwelling where they make up fully 12% of the identifiable mammal remains from that period. While cat remains were present from the beginning at Champlain's Habitation, they apparently must have undergone something of a population explosion, as cat bones make up nearly 28% of the later mammalian assemblage at that site. There they must have been needed for rodent control, for rats make up another 18% of the remains. This could account for their presence at Pentagoet as well, although rats were not present in the faunal sample.

Domestic cats were completely new to the Indians of Québec when the animals were introduced in 1623. Father Sagard, a Récollet missionary, apparently gave a cat to an Indian escort who was in charge of his canoe. The Indian and his companions were very impressed by the animal, noting that since it obeyed the calls of the Frenchmen, it must have had the ability to reason.[17] From this account, it appears that the cats were not simply let loose as near-ferile pest exterminators, but rather were treated as pets.

Yet the cat bones at Pentagoet occur not as the articulated skeletons of buried pets, but as fragments which appear to have been treated in the same fashion as the food remains. While it is difficult to identify starvation foods at a time when Europeans had ingenious methods for preparing nearly all parts of all animals and thrived on this variety, it seems reasonable to suppose that they drew the line at devouring their pets. This leads to speculation that boiled cat was indeed a starvation food, and that the remains may represent the winter of 1671/1672 when famine struck Pentagoet.[18]

Domestic Fowl. Although there is no concrete evidence for domestic birds at Pentagoet, they appear to have been common in the rest of the French northeast. Domestic pigeons were kept at Port Royal from its beginnings in 1605, and by 1620 the Récollets were keeping geese, ducks, and chickens in Québec.[19] Surprisingly, there are no domestic chicken or pigeon remains from either sample at Pentagoet, but it is possible that some goose and duck remains represent domestic varieties.[20] Geese are particularly common in Pentagoet I, and their predominance in the fowl remains seems to be greater than expected from their natural availability.

Wild Game

At both Champlain's Habitation and Pentagoet, although domestic species provided much of meat consumed by the communities, native mammalian fauna contributed significantly to the diet during the earliest stages of occupation. Together, remains from five wild species—bear and seal, followed by beaver, deer and moose—are equal in number to domestic animals during Pentagoet I. In Pentagoet III, by comparison, their contribution to the mammalian fauna appears to be minimal.

Seal. The common harbor seal was apparently of special importance during Pentagoet I. D'Aulnay was no stranger to seals as a resource, for according to d'Aulnay's competitor, Nicolas Denys, he sent men from Port Royal to the Seal Islands near Cape Sable to kill gray seals.[21] At this birthing site, his men clubbed the young to death, much in the same manner that harp seals are taken in Canada today. D'Aulnay's primary objective was not to take pelts, but rather to procure oil for eating and burning; the product was considered superior to fish oils because of its milder odor and clarity. At Pentagoet the smaller harbor seal was probably hunted for its meat, as its remains were recovered in an alimentary context.

Beaver. Beaver remains are surprisingly common in the Pentagoet I midden, and are represented by numerous cranial and post-cranial fragments. This suggests that they were killed not only for their furs, but were actually included in the food supply as well. Beaver was not a starvation food, for Denys valued the boiled tail meat as especially good eating, and recommended roasting the rest of the carcass as one would a shoulder or a leg of mutton. Like other early writers, he classified muskrat, otter and beaver as four-legged fish, and therefore, in the eyes of the Roman Catholic Church, meat which could be eaten during Lent.[22] Nevertheless, as time went on, both seal and beaver meat apparently lost their appeal at Champlain's Habitation and at Pentagoet.[23]

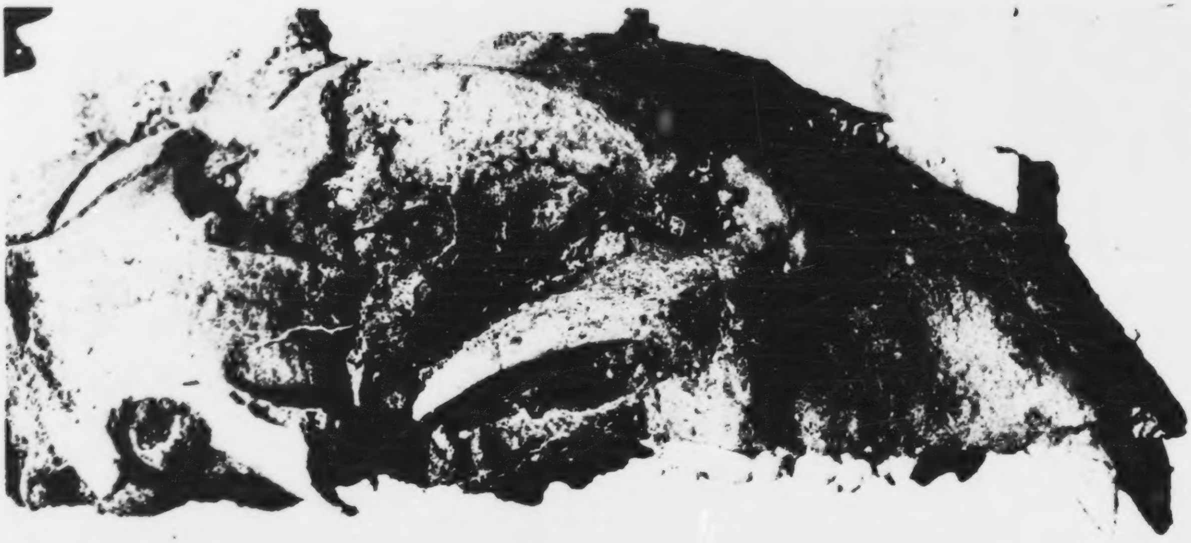


Figure 8.3 Skull of a young bear cleaved along its sagittal axis for presentation at the table (Pentagoet I).

Black bear. The meat of the acorn-fed black bear of Pentagoet was specifically praised by Denys, who pronounced it "very delicate and white as that of veal."[24] Not only was the meat compared to veal, it was evidently served at the table in very much the same manner. Two bear skulls recovered from the Pentagoet I midden were neatly cleaved in half along the sagittal axis (Figure 8.3). This awkward butchering practice was not just a method for extracting the brains, but rather for presenting the bear, served in profile, on a platter. Such practice was commonplace in Europe, and recipes for calf's heads presented in just such a fashion were published as recently as 1861.[25]

Birds. Fowling was very popular throughout both French occupations of Pentagoet, and swan and goose shot were frequently found in between cobbles in the parade ground. The sport yielded a wide range of aquatic species, although fewer upland game birds were represented at Pentagoet than at Champlain's Habitation.[26] Most were migratory waterfowl—swans, geese, and numerous species of duck—and small shore birds such as curlews and sandpipers; just a few woodcock (snipe) and grouse appear to have been taken.

Many of these very species were key ingredients in a picnic feast provided for Isaac de Razilly, Governor General of Acadia, by Nicolas Denys, c. 1633:

> I had him enter a hall which I had built, covered with branches, where he found a table very well furnished, with pigeon soup, with Wild Geese and Brant; with these all his retinue enjoyed themselves as well as he, for they all had good appetites. To this course there followed another of Brant and Teal, and to that a third of large and small Snipe, and Plover in pyramids. It was a delight to all the men to see so much game at once, but all of it did not cost more than two day's work of my hunters. Raspberries and Strawberries in abundance served for dessert, these having been brought for me by the children of the Indians whom I had employed in order not to divert my men from their work. White wine and claret were not wanting for this little feast, so that Monsieur de Razilly and all his retinue were very well pleased, as indeed were my own men, who hoped that Monsieur de Razilly would come often to see them. To this I would not have found myself in agreement, not because of the expense of the game which never failed me—they had it every day—but because of the hindrance to my [lumbering] work.[27]

Just as this was daily fare for Denys' employees, it appears that such foodstuffs were commonplace at his rival's establishment at Pentagoet. This preference for fowl continued into Pentagoet III where it clearly can be recognized in the refuse of the cellar kitchen of the dwelling. The variety of avian fauna in this period seems extreme, suggesting that at one time Pentagoet hunters shot virtually anything that flew. Not only did they bag the conventional edible species—ducks, geese, snipe, and sandpipers—but also gulls, herons, and a hawk. This indiscriminate hunting suggests once again the image of a garrison facing starvation.

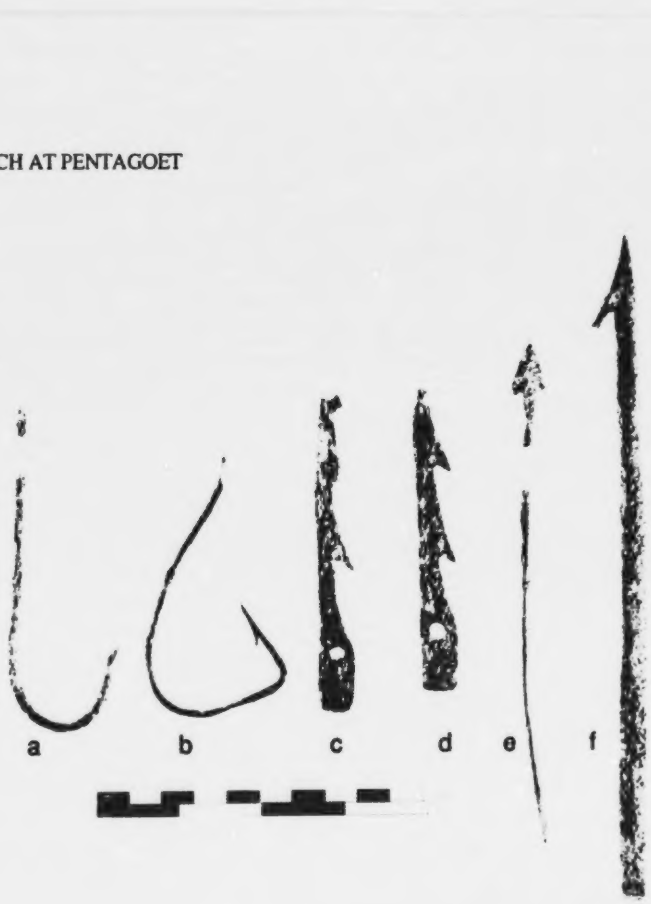


Figure 8.4 Iron hunting and fishing tools: *a–b*, fishhooks with plain, flat tang; *c–d*, harpoon tips; *e*, lance or arrow point; *f*, spear point.

Fish. As was the case with fowl, fish remains at the two sites differ because of the different geographic settings. At Champlain's Habitation, lying well up the St. Lawrence River, remains included various fresh water and anadromous species, such as channel catfish, eels, and sea sturgeon, while salt water species, particularly cod, were only of intermediate significance.[28] Pentagoet, lying on Penobscot Bay, produced relatively more cod and striped bass, as well as sea sturgeon.[29]

Dried cod, a major product of New England and Acadia, must have made up a substantial portion of the Pentagoet diet. The chief sources of cod at Pentagoet were neighboring English fishing stations. In his map of c. 1671, Grandfontaine pointed out that Pentagoet's codfish came from "L'Isle de Montinique" [Metinic Island], and records show that the French trader Brunet also supplied the fort with cod which he purchased from the English at nearby Monhegan Island.[30] Prior to drying and shipping, however, the heads, tails and guts were removed from the cod, so that few if any bone elements would be found at Pentagoet from fish processed in this manner.[31] Yet, the faunal sample includes numerous cranial, pelvic girdle and vertebral elements. Apparently the garrison supplemented their supplies of commercially prepared cod with fresh fish which they caught themselves—an activity substantiated by the presence of a few large fishhooks scattered among the middens (Figure 8.4). By contrast, at the English Clarke and Lake Company settlement, virtually no fish remains were recovered even though fishhooks were numerous. There the fishermen apparently split and cured all fish, even that which was to be consumed locally.[32] These different practices probably originated not because the French preferred fresh fish, but rather because they lacked adequate stores of salt necessary for dry curing. The French were the major suppliers of salt to the cod fisheries, both French and English, but salt was often in short supply and very expensive.[33]

Shellfish. Soft shell clams may have been consumed by Europeans at Pentagoet, but if so, it would be difficult to distinguish these remains consistently from the voluminous redeposited shell remains which are of prehistoric aboriginal origin. Denys, who describes in detail nearly every other food resource, gives no indication that he ever ate them, and it is likely that they served as pig feed rather than as human staples. The French apparently preferred oysters, which were not available at Pentagoet, and mussels, which do not preserve well in the archaeological record.[34]

Hunting and Fishing Equipment

Some methods of food procurement can be inferred indirectly from the small collection of hunting and fishing equipment which survives. According to Denys, European hunters relied principally on firearms for hunting, while the Indians preferred to take some game, particularly beaver and anadromous fish, with spears, harpoons and arrows tipped with iron, and supplied to them by the Europeans.[35] Many of these supposedly Indian tools were found both within the guarded confines of Pentagoet's compound and in the sediments lying just outside the fort (Figure 8.4). Either these items were used by the fort's company as well, or they came imbedded in the meat purchased from Indian hunters. In any case, there seems to have been little effort made to repair or recycle them, as was done with axes and firearms; rather they were apparently discarded and replaced as needed. Such items were probably mass-produced abroad and provided in quantity for trade with the Indians and perhaps for use by the fort's company as well.

Vegetal Foodstuffs

Because of poor preservation of floral remains, their role in Pentagoet foodways must be inferred from other evidence. Of wild plant foods, there is virtually no direct record. Denys makes special note of the abundant ground nuts, currants, strawberries, raspberries, grapes, wild cherries, and hazelnuts available, and it is reasonable to suspect that d'Aulnay's men took full advantage of these foods.[36] On the other hand, Grandfontaine makes no mention of these resources other than to identify Sear's Island as "Hazelnut Island," leading us to speculate that the French of Pentagoet III may have made little use of them.[37]

Agricultural products, however, were important in both periods. Traditionally, bread made up a substantial portion of the French diet, and during Grandfontaine's tenure as commander, a bread oven stood just outside Pentagoet's gate.[38] Adult peasants in France are said to have consumed three pounds per day or more, chiefly because it was by far the cheapest source of calories.[39] That it was both critical to the diet and in short supply on the Anglo-Acadian Frontier is clearly indicated by the manager of the Richmond's Island fishing station who wrote to his employer in 1634:

> I dare not put away much bread before I se how our harvest will proue, for feare of wanting, for our men Cannot worke the winter without their bread.[40]

Grain was also needed for the inedible crusts in which food was baked, and for brewing beer. However there is no indication that either wheat, rye, or barley was grown or milled at Pentagoet, although d'Aulnay's farm on the St. George River may have yielded some produce for the fort; in Pentagoet III it seems clear that all flour and grain had to be imported.[41] Indeed if bread was a staple at Pentagoet, it must have been an expensive one.

Besides wheat, rye and barley, common agricultural products in this period included oats, peas, lentils, beans, asparagus, and cabbages. But it is unlikely that these were planted at Pentagoet. In a letter to Colbert in 1671, Talon wrote that Grandfontaine's men had no seeds for European crops, and in desperation had planted "bled d'Inde" or maize near the fort.[42] Charred seeds found in the barracks indicate that they grew squash as well. There was also an orchard of fifty to sixty fruit trees just west of the fort, which apparently had been planted by d'Aulnay.[43] Apple orchards were just beginning to spread from Normandy through the rest of France in the 17th century, and so d'Aulnay's foresight must have provided the later inhabitants with the fixings for making a relatively new beverage: cider.[44] Still, other than d'Aulnay's orchard and the small private gardens of the soldiers and *engagés*, no land was cleared and under cultivation about the fort as late as 1671.[45]

"The most commendable Fashion for Dressing either Flesh, Fish, or Fowl"

The nature of the faunal remains from Pentagoet suggests that stews were the most common fare. Generally a number of different kinds of flesh and fowl, vegetables, lard and bread would be simmered together in a spicy bouillon for ten to twelve hours.[46] Along with potages, amalgams of spit-roasted viands, and various mixed meat dishes, stews were fundamental to the corporate cuisine of medieval France, a cuisine which continued, with a few embellishments, well into the 17th century when it was still popular among the French middle and upper classes.[47]

Some of the simpler, contemporary recipes provide specific examples of dishes which might have been prepared for the elite at Pentagoet and perhaps for the men as well. *A New Booke of Cookerie*, by "I. M.," published in 1615, gives instructions for preparing numerous dishes suitable to "adorne eyther Nobleman or Gentleman's Table." While this source does not take into account the full range of regional cooking styles, it does attempt to describe "the French fashion" of cooking for a period when culinary themes were limited; many of the dishes described seem to account very well for the butchery practices observed at Pentagoet. Mutton, the English staple, is the favorite example, but its preparation probably represents techniques used for the meat of larger mammals as well.

The first, a recipe for stuffed leg of mutton, shows that the mutton was boiled together with scraps of other meat—beef marrow and suet and veal foot joints—recalling the fragmented bones found at Pentagoet.

> To boyle a legg of Mutton on the French fashion.
>
> Cut out all the meat at the but-end, leaving the bone still in. Mince it small with Boefe suit, and Marrow. Then take sweet Creame, yolkes of Egs, a few Razins of the Sun, two or three dates minst, a little grated bread. Season it with Pepper, Salt, and Nutmeg: then work it stiffe, like a Pudding, and cram it in again. Then stue in a Pot with a Marrow bone, and a knuckle of Veal: serve the Legge by it selfe, and your knuckle in stued broth, and your Marrow bones upon Bruys [bracken?], with Carretts, and Peppers.[48]

Another recipe shows how a rack of mutton might be braised. Note that the vertebrae were split axially and the ribs were cut in short pieces, as was the case for many corresponding pork and beef bones at Pentagoet:

> To smoore a Rack, or ribbes of Mutton.
>
> Cut up your Mutton in pieces, and split it with the backe of a Cliver, and so put it into a Dish and a piece of sweet Butter, and put it into the bottome of your Dish: then take a Fagot of sweet Hearbes, and grosse Pepper: stue them in a covered dish with a little Salt: turne them now and then, and when they are enough put them in a cleane dish with sippits [pieces of toast]. This Dish is best garnished with Barberrys and Pepper.[49]

Recipes for baked birds seem to follow a standard theme, with minor adjustments for the size of the bird. In all cases, however, it is presumed that several birds were to be prepared at once in meat pies—*tourtières* or *pâtés*. The larger ones were to be boned, while the smaller ones were cooked bones and all:

> To Bake a wilde Goose or Mallard.
>
> Parboyle them, and breake the brest bone of a large Goose, or take it quite out and all the other bones also, but not out of a Mallard. Season them and Lard them, and put them into deepe Coffins [inedible rye pastry crusts], with store of butter: when you draw them out of the Oven put in more [melted butter in the venthole of the top crust].
>
> To Bake a Curlew or a Hearneshoe.
>
> Truss them, and parboyle them but upon one side. Season them with Pepper, Salt, and Ginger. Put them in deepe Coffins, with store of Butter, and let the heads hang out for a show.[50]

Woodcocks, larks, sparrows and blackbirds were coated with lard and prepared following the latter recipe. According to one authority, pies of fowl or game, which included "every kind of edible bird: partridge, white birds, snipe, teal, plover, bustard and duck," were apparently common fare in New France.[51]

Recipes for fresh fish were simpler still, and variety was apparently achieved principally through selection of spices rather than changes in basic technique of preparation:

> To boyle Flounders, or Goodgeons [carp], on the French fashion.
>
> Boyle a pint of white wine, & a pint of faire water, a few sweet Hearbs, tops of yong time, sweet Marioram, winter Savory, tops of Rosmary, a piece of whole Mace, a little Parsley pickt small: when all is boyled well together, put in your Fish, and scum it well. Then put in a little crust of Maunchet [fine wheat bread], a quarter of a pound of sweet Butter. Season it with Pepper, and Vergis [goldenrod?], and so serve it in.[52]

Tools for Victualing

It is all too easy to misinterpret function from form, especially for frontier assemblages where there was great pressure to reuse manufactured goods for new purposes. Such uncertainty is common among tools associated with storing, preparing, and serving foods. It is reasonable to suspect that most of Pentagoet's imported provisions were shipped in barrels and stored in the Magazine (3), its cellar, and other areas designed for storage such as the cellar of the Dwelling (1.1). Also many of the coarse earthenware vessels, particularly GG2 pots and the GG3 jars from the Saintonge region, which came filled with butter, ointments, and other foodstuffs and drugs, undoubtedly saw duty later in other capacities, especially for food preparation. Several other items are of ambiguous form, but their functions are often suggested by the contexts in which they were found.

A Standard for Rations

Amid the midden on the floor of the Dwelling's cellar (1.1) was found a cube of lead with chamfered corners, which looks very much like an oversized die without the spots, and is interpreted as a balance weight. The item was originally a lead sphere, about the size of a grape shot, but facets have been hammered on each side to keep it from rolling, producing a slightly irregular cube approximately 3.2 cm on a side. However makeshift this item may appear, it weighs 245.0 g or precisely 0.50 *livre* in the *Système de poids de marc de Troyes*, a general purpose measure of universal acceptance in the 17th century.[53] At Fort La Tour, a single lead weight was also found, this one discoidal in shape, and stamped on top with a fleur-de-lis over what appears to be a two-masted sailing vessel.[54] Weighing "one pound and one ounce," it corresponds to one *livre* in the Troy system. While the Fort La Tour piece may have been brought along as a standard to be used in business transactions—weighing everything from beaver pelts to European manufactured goods—the battered half *livre* cube from Pentagoet probably saw daily use in measuring rations of meal and other foodstuffs in the Dwelling's cellar kitchen.

Cooking Utensils

In general, food preparation and serving utensils at Pentagoet are well adapted for the diet represented in the faunal remains, especially the mixed meat stews and potages which

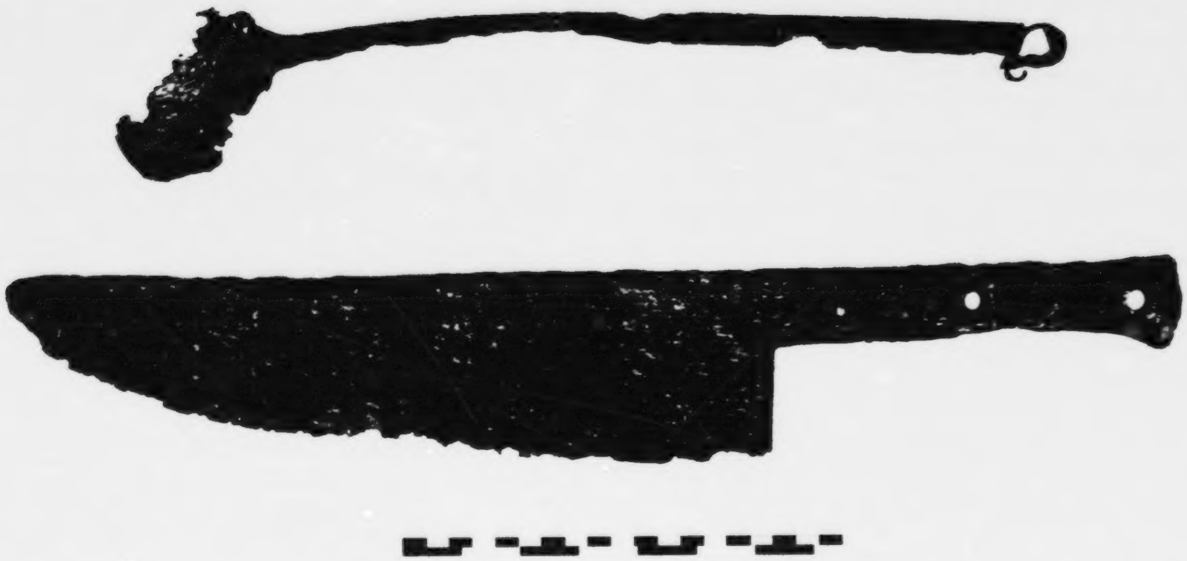


Figure 8.5 Kitchen utensils: *top*, wrought iron ladle, probably used for dispensing stews and potages (Pentagoet I); *bottom*, large cleaver (Pentagoet III).

seem to have been staples. One remarkable item is an enormous cleaver or butcher knife some 50.7 cm long, appropriately marked with three asterisks, the customary touch marks used for axes. This is a tool equal to the most formidable butchering tasks from preparing racks of ox ribs to cleaving a bear skull in half. A large, wrought iron ladle, nearly as long as the knife and having a delicate ess curved finial at the end, is suitable both for removing boiled meat or stew from a pot, and dipping cider from a barrel (Figure 8.5).

Other than meats that were spit-roasted over the fire, most of the foods prepared at Pentagoet were probably either baked in a rye crust or were boiled in some other form of container. One distinctive characteristic of food preparation on early French sites appears to be the use of ceramic cooking pots to the near exclusion of their more expensive cast iron counterparts. As a general rule, stews and potages appear to have been steeped over the coals in coarse earthenware containers, such as the double handled YG1 marmites discussed in the previous chapter. This was apparently common practice among French peasants, whose probate inventories list numerous earthenware pots in various condition, but rarely mention cast iron pots.[55] Following this pattern, Pentagoet has but one cast iron vessel, represented by a long pot leg found eroding out of the bank. By contrast, in contemporary sites in New England, iron pots are common; at least five are noted from the Clarke and Lake Site, four of them having five-sided legs, a unique design produced only at the 17th-century ironworks in Saugus, Massachusetts.[56] One such five-sided kettle leg is also present in the assemblage at Fort La Tour—clear evidence of La Tour's dealings with Massachusetts merchants. As at Pentagoet, however, it is the only 17th-century cast iron kettle part recorded.[57] No cast iron vessels have been excavated at all at Champlain's Habitation; coarse earthenware cooking pots are numerous and undoubtedly were the principal cooking vessels there.[58]

At Pentagoet and Fort La Tour, there are many fragments of copper alloy vessels (often referred to as "kettles" although technically they are pots). While such pots were popular items in the fur trade conducted at these frontier outposts, they were also used for cooking by Europeans, and at Pentagoet they were commonly repaired in the Smithy. Unlike their earthenware counterparts, which were useful for slow cooking, these metal containers were better suited for bringing liquids to a rapid boil.

As the ceramics analysis has shown, few vessels at Pentagoet were designed for dairying, in contrast to assemblages from agricultural communities in New England. There seem to be relatively few forms suitable for separating cream or storing butter or making cheese. In this case, woodenware probably would not have served well as a substitute, because of the difficulties in keeping it clean enough even for 17th-century health standards. Vessels such as the GG2 pouring pot may have come in handy for transporting or serving small quantities of milk as well as other liquids, but there may not have been enough surplus for making storable dairy products. Here, with a population which was nearly all male, dairying may have been an activity of such little

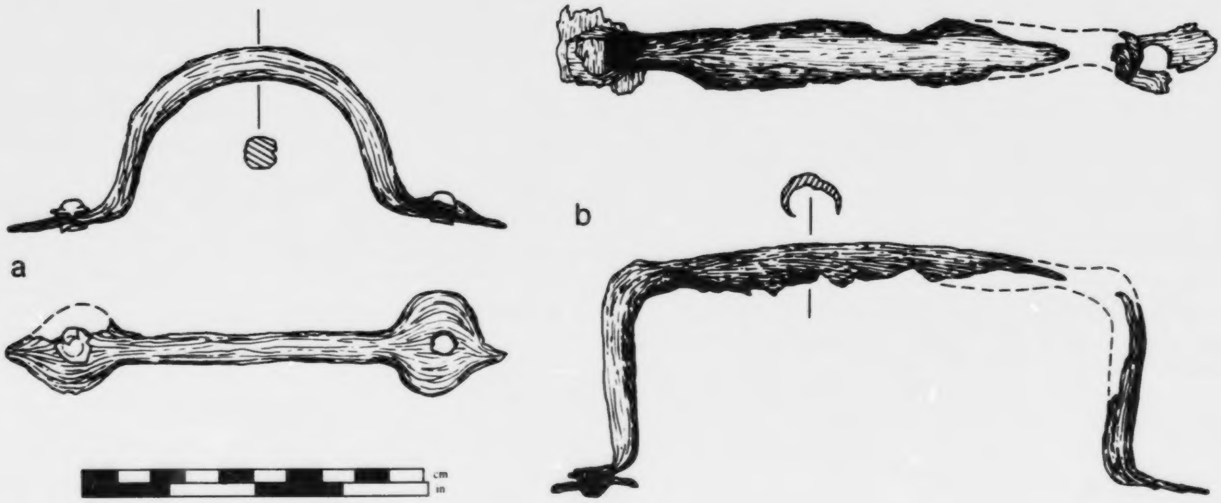


Figure 8.6 Iron handles to copper vessels: *a*, pot or kettle cover handle; *b*, barrel lid handle.

prestige that the garrison elected to keep it to a minimum.

Barrels and Beverages

There is little direct evidence for the various beverages prepared at Pentagoet, but it is likely that they included cider made from d'Aulnay's fruit—a relatively new beverage for Frenchmen; peasants who could not afford wine on a regular basis in France generally drank water in various states of impurity. Fruit "drink" was becoming common as a daily beverage, and was a good use for produce which was unfit for market:

> There would be all sorts of barrels around the house, frequently empty... which could be used for collecting rainwater (if there was a gutter), or for filling with apples or fruits and berries gathered from the lanes and woods, which could be left to make 'drink' after water had been added and they had steeped for a while."[59]

The recipe was simple, consisting of "overripe fruit they threw into a barrel half-filled with water, along with a few leaves that were deemed 'tasty.'"[60]

No barrels as such have survived at Pentagoet, for in this period they were made entirely of wood, including the hoops. Nevertheless, a copper lid, reinforced with a wrought iron framework, was exposed on the floor of the cellar in the Dwelling (Plate 21). The artifact, at 57.2 cm in diameter, is just about the size of the top of an average hogshead,[61] and appears to have been provided with a hinge on one side, allowing it to open much like a tankard lid (Figures 8.6*b* and 8.7). This may very well have covered a cider or fruit drink barrel, for it would permit the addition of fruit from the top.

A hogshead fitted with a flip-top lid would also have been convenient for making beer. English fishermen at Richmond's Island brewed beer regularly, as the manager notified his employer:

> Yt had bin better that you had sent me malt and meale in steed of bread and beare, for I haue fitted our house heare at Richmon Iland to brew our beare and to bake our bread, & haue done yt all this yeare past."[62]

Thomas Gorges, who from 1640 to 1643 managed the personal estate of his older cousin Sir Ferdinando Gorges, lord proprietor of the Province of Maine, described the difficulties of brewing at York (Agamenticus) in July of 1640:

> I brew beer one day and tis good stale beer by the next day & we drinke it till we have mayde an end & then we drinke water till we can get more. This we must doe for heer are but few vessels. The weather is hot that quickly sowers it, & likewise I want hops, but now I am makinge a seller & have sent to the Bay for hops, so I hope to have all in better order.[63]

A cool cellar was clearly important in controlling the fermentation rate, and keeping the brew from spoiling; food preservation was clearly one of the important considerations

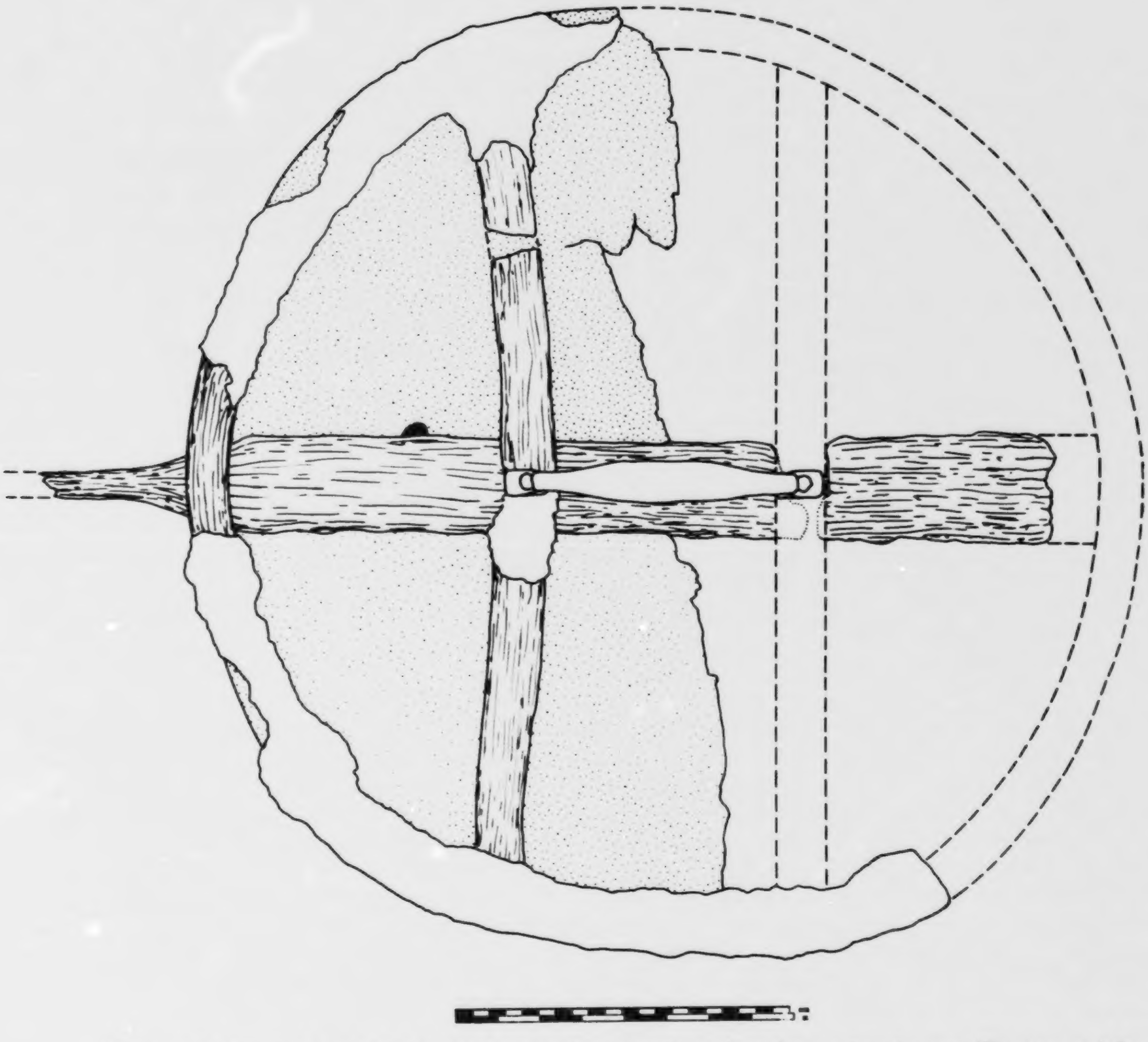


Figure 8.7 Copper lid, reinforced with wrought iron, thought to have been a barrel cover. The tang at left may well have been part of a hinge, allowing the cover to open in the same fashion as a tankard lid.

in constructing the cellar of the Dwelling at Pentagoet. But the ingredients for beer were evidently hard to come by. Considering the state of agriculture at the French post, the malt and hops would have had to be purchased, an expense which would compromise the company's ability to buy other essential foodstuffs such as meal for their daily bread. Having the advantage of d'Aulnay's orchard, the French may have depended on cider, or some approximation thereof, as their daily beverage—making do with water when the supply ran out.

Wine and distilled spirits—*eau-de-vie* or *aqua vitae*—were provided in bulk in closed barrels (Appendix H). In the fall of 1673 the La Rochelle merchant Henri Brunet and another trader, Monsieur d'Artiaque, supplied Pentagoet with trade goods and *barriques* of wine and *aqua vitae* in exchange for moosehides.[64] In all likelihood, the liquor was stored in the the large cellar underneath the Magazine (3), an especially convenient location as it also contained the fort's well. The Magazine cellar was excavated by amateurs in 1892, and few if any of the artifacts have survived from that enterprise. However, local historian Dr. George A. Wheeler reported the recovery of an "old-fashioned faucet."[65] This was undoubtedly a brass spigot or petcock like those commonly found on other French sites; one was unearthed at Ste. Croix, two at

TABLE 8.1
Minimum Counts of 17th Century Glass Bottles

Description/basis for count	Fragments*	Count
Case bottles		
base, blow pipe pontil	1	1
bases, rough pontil	11	11
necks, flared and sheared	(10)	
additional fragments	(886)	
Total case bottles	908	12
Wine bottles, dark green		
"wine," globose, base and body	1	1
string lip, tooled flat	(1)	
additional fragments	3	—
Total wine bottles	5	1
Pharmaceutical bottles		
clear cylindrical		
shoulder fragment	1	1
base, rough pontil	1	1
pale green, cylindrical		
neck, flared	1	1
neck, conical, broad everted lip	1	1
base, blowpipe pontil	1	1
base, rough pontil	(1)	
base, unidified pontil	1	1
additional fragments	7	—
Total pharmaceutical bottles	14	6

*Figures in parentheses do not add to the minimum count.

Fort la Tour, and eleven at Champlain's Habitation, eight of which came from a single cellar.[66]

Bottles and Their Contents

While bottles occur in great quantities on frontier and military sites of the 18th century, they are comparatively rare on their 17th-century counterparts.[67] Glass bottle production grew in European centers during the second half of the century, beginning to displace their ceramic alternatives, but bottles of both kinds, ceramic and glass, were apparently supplied in relatively small numbers to frontier sites such as Pentagoet. Just six Frechen bartmanns have been identified, and their glass alternatives are not much more numerous. Some 1216 bottle glass fragments were excavated, of which at least 927 or 76% represent 17th-century occupations. Yet this sub-assemblage probably represents a mere 18 to 20 bottles of various types (Table 8.1).[68] Twelve of these, the overwhelming majority, are case bottles, while the remainder consists of a single wine bottle and six pharmaceutical bottles. In comparison to the 108 ceramic vessels, glass bottles appear to have played only a minor role as food containers.

This contrasts dramatically with most later colonial sites. By the second half of the 18th-century wine forms often dominate the glass bottle assemblage, and, on frontier/military sites, may outnumber ceramic vessels by as much as 3 to 1.[69] The difference probably has little to do with changes in per capita wine consumption, but demonstrates instead the increasing use of wine bottles as shipping containers rather than as decanters. This change in bottle function is reflected in the general transformation, from globose or onion shapes to more compact cylindrical or "flower pot" forms.[70]

Case bottles. Case bottles are square in section and, as the name implies, could be packed efficiently in sawdust within crates. This form must certainly have been advantageous for shipping beverages to remote frontier and military sites.[71] The contents probably were not such common staples as ordinary wine, which generally came in barrels, but rather relatively small quantities of more expensive, distilled spirits—various forms of gin or brandy.

Because of the extensive fragmentation of the thin bottle walls, no specimen was reconstructed to its full height. Fortunately, however, the bases and the necks generally survived intact, and it was an easy matter to arrive at a vessel count which must closely approximate the actual number of vessels recovered. The twelve 17th-century case bottles are nearly identical in form, although they come both from Pentagoet I and Pentagoet III deposits (Figure 8.8). All are of light green glass or "metal," and are relatively thin and lightweight, even at the base. Necks are short and flare at the opening, forming a slightly everted lip which is sheared and fire-polished, but otherwise lacks any tooling (Figure 8.9*a*–*c*). Such openings evidently were closed with simple cork stoppers, rather than with pewter screw caps, as was typical of certain contemporary designs.[72]

As in all early glass bottle manufacture, the finishing of the neck involved temporarily attaching some form of "pontil" or metal rod to the base, permitting the removal of the blowpipe. After the neck was tooled, the pontil was removed, leaving a characteristic scar. With one exception, which had a ring-shaped, blowpipe pontil mark, these items were empontilled with a solid, glass-tipped rod, leaving the characteristic "rough" pontil scar (Figure 8.9*d*–*f*).[73]

Similar specimens have been reported from other early and middle 17th-century sites, including Jamestown and Champlain's Habitation; a specimen from Burr's Hill, a Wampanoag cemetery in Warren, Rhode Island, is virtually identical to those from Pentagoet.[74] Of the seven or so case bottles from 17th-century contexts at Fort La Tour, the majority were identical to those at Pentagoet. At least two examples, however, were of a more complex design; each had a short neck with an everted lip which was fitted with a threaded pewter collar to accommodate a screw cap.[75]

Thus the flared neck case bottle appears to have been a common article of supply both on French and English sites in North America. Although case bottles are usually identi-

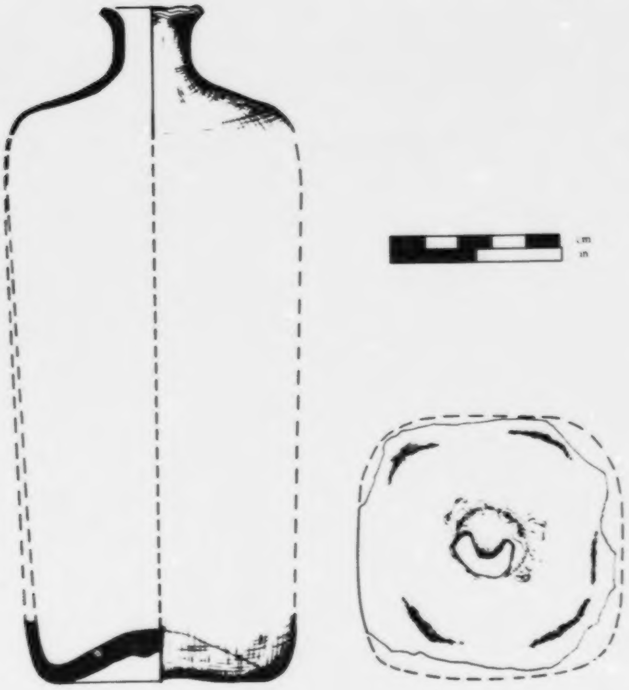


Figure 8.8 Case bottle of light green glass, having a flared, sheared top and rough pontil mark. This is the most common bottle form at Pentagoet, occurring in both Pentagoet I and III, and represents at least 11 specimens.

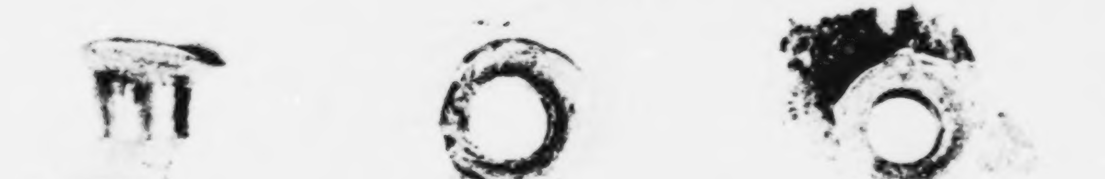
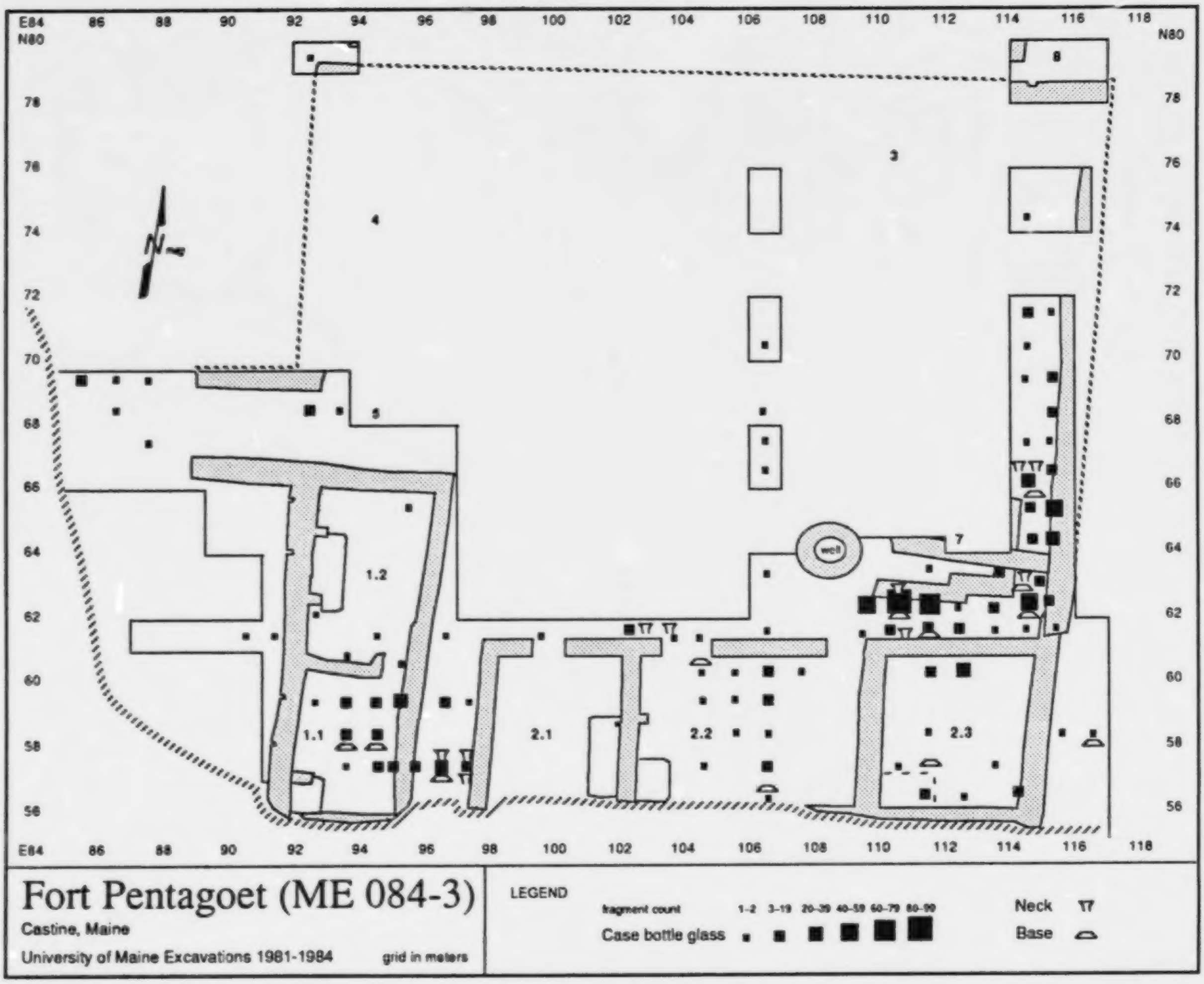


Figure 8.9 Corresponding case bottle parts: top row, flared, sheared necks; bottom row, bases with rough pontil scars.


E84
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2.1
2.2
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well
Fort Pentagoet (ME 084-3)
Castine, Maine
University of Maine Excavations 1981-1984
grid in meters
LEGEND
fragment count
1-2
3-19
20-39
40-59
60-79
80-99
Case bottle glass
Neck
Base

Figure 8.10 Spatial distribution of 911 case bottle fragments at Pentagoet. Note the near absence of these fragments in the main room of the Dwelling (Structure 1.2) and in the Officer's Quarters (Structure 2.1).

fied either as Dutch or English, the manufacturing origin of these particular bottles is unknown; it is possible that similar case bottles were produced in a number of European factories, including, perhaps, the French factories in Normandy and Rouen. In any case, these bottles apparently circulated freely in Europe, so that the source of manufacture may have little to do with the source of supply.[76] Indeed, it may have been this widely distributed bottle form which was the prototype from which developed the dark green Dutch and English "gin" bottles, and the pale blue, tubular-necked French "*flacon*," forms which occur regularly on 18th- and 19th-century colonial sites.[77]

The spatial distribution of these early case bottles demonstrates the physical integrity of the 17th-century components at Pentagoet (Figure 8.10). Bases and necks occur in almost equal numbers, and frequently are paired together amid dense concentrations of side and shoulder fragments. This clear focus suggests that the bottles had seen relatively little disturbance since they were broken and discarded. This is true both of the specimens immediately within and outside Structures 1 and 2, which are generally of Pentagoet III date, and the fragments east of Structure 8, some of which extend under the east wall and were deposited during Pentagoet I.

Particularly striking about the distribution is the near absence of case bottle glass from the more comfortably furnished rooms and the gateway, indicating that while the occupants were content to walk through trash of pig bones, tobacco pipes, and potsherds, they balked at sharp-edged bottle glass.[78] The main room of the Dwelling (1.2), is nearly devoid of case bottle fragments, and in the Officers' Quarters (2.1), they are totally absent. By contrast, case bottle frag-

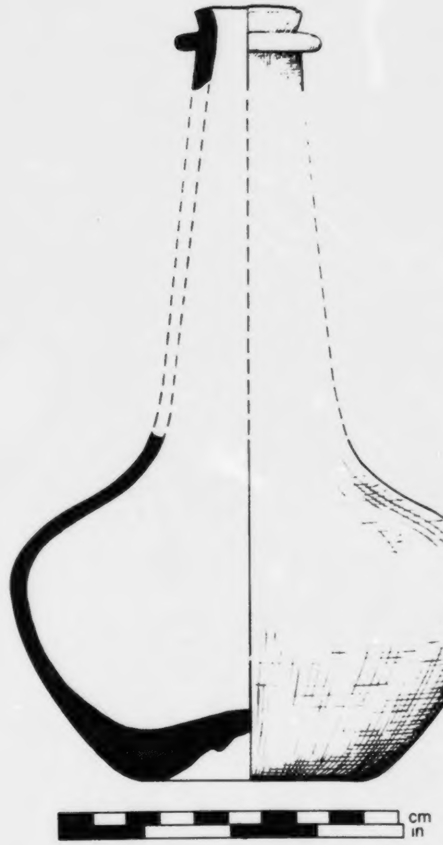


Figure 8.11 Base and body of a long-necked, globular wine bottle, of dark green glass. This specimen exhibits a slight carination at the shoulder, and the rough scar from a glass-tipped pontil in the middle of the push-up. The neck fragment, which has a flat-tooled rim, was found separately in a disturbed context and may or may not belong to this specimen. This general wine bottle form was typical of production both in the England and in the Netherlands between c. 1650 and c. 1670.

ments are present in significant quantities in the cellar kitchen of the Dwelling (1.1), and in the adjacent Barracks, (2.2-2.3). In both instances these fragments occur in the very upper levels of 17th-century occupation, and may have been located in second floor sleeping quarters at the time of the fort's demolition; the remaining shards, on the courtyard and in the spaces between and behind buildings, were evidently discarded earlier.

From this distribution it appears that case bottles were distributed among the workers and soldiers as well as among the fort's elite. Who drank the original contents, however, is unclear; the empties were surely recycled regardless of their original function as shipping containers. The inferred presence of case bottles in the sleeping quarters suggests that the contents may have been some private stock—perhaps some liquor such as brandy, the "water of life,"—perceived to be a vital tonic rather than a mere foodstuff or recreational beverage.

Wine bottles. In contrast to case bottles, wine bottle remains are very rare indeed. Just one identifiable wine form was found in a clear 17th-century context—the base and body of a bottle of dark green glass, its surface badly exfoliated (Figure 8.11).[79] These remains represent a long-necked bottle of globular or "bulb" form, which was typical of bottle manufacture both in England and in the Netherlands between c. 1650 and c. 1670.[80] This particular specimen came from the main room of the Dwelling, Structure 1.2, where it must have been in use just before the destruction of the fort. The location, in an area virtually free of case bottles, suggests a very different function for the wine bottle. Here, in the principal chamber of what appears to have been the governor's quarters in Pentagoet III, such a bottle probably served at the table as decanter for beverages imported in bulk. It was, in effect, a functional replacement for the ceramic bartmanns in general use during Pentagoet I.

This wine bottle form is known from several 17th-century European settlements from Québec to Virginia, but only in small numbers; at Fort La Tour, none were recorded. At Champlain's Habitation, three examples were found, and a published illustration of one of them is a perfect match for the Pentagoet specimen, having a slightly carinate shoulder which distinguishes these bottles from many of their contemporaries.[81] Perhaps more informative, however, is the large assemblage of early bottles from the Burr's Hill Indian cemetery. There the 32 graves which contained historic items yielded some 28 wine bottles, most of which are of this same globose form.[82] These bottles generally were found singly, although one particularly rich grave contained nine specimens. Surprisingly, wine bottles at this time may have been more significant as aboriginal funerary offerings than as decanters on the tables of Europeans.[83]

The origin and dating of these glass containers is not clear, but the possibilities are limited. Dark green bottle glass is often regarded as evidence of impurities created in making glass in a coal-fired furnace, whereas light green or pale blue bottle glass is more likely to have been formed in a charcoal-fired furnace.[84] Although the English appear to have used coal in glassmaking at an earlier date than their European contemporaries, glass color is not generally regarded as a reliable indicator of origin. In the case of the Burr's Hill assemblage, the form of the rim has been used in an attempt to distinguish Dutch and English specimens. Carefully applied rims which have been tooled flat from above and below are said to indicate English manufacture, whereas those which are carelessly draped about the bottle neck and show minimum tooling are generally regarded as being Dutch.[85] Consequently, all but five of the Burr's Hill specimens are identified as "English," and the rest are assumed to be "Dutch." The Pentagoet specimen has been reconstructed with a rim which was found separately in a disturbed stratum, and may not actually belong to the bottle. It does, however, exhibit the flat tooling of the supposed "English" style.

Another distinction can be made on the basis of pontil marks. All of the specimens at Burr's Hill with complete bases have sand pontil marks, while the specimens at Champlain's Habitation and Fort Pentagoet show the rough scar of the glass-tipped pontil. During the 18th century, English glass blowers used the sand-tipped empontilling technique almost exclusively when making wine bottles, while other European glassmakers generally used blowpipes or solid glass-tipped pontil rods. It is unclear, however, whether this distinction holds for the 17th century. In any event, both the Champlain's Habitation and Fort Pentagoet specimens have the rough scars characteristic of continental European manufacture.[86]

Pharmaceutical bottles. Small bottles, generally thought to have been used for medicines, are few at 17th-century Pentagoet, but at least six are represented by a combination of neck and base fragments. These specimens all are round in section, and cylindrical or conical in outline; unlike the tall forms which became popular in the 18th century, they seem to be relatively short bodied.[87] Two of the specimens are of clear glass, while the remainder are of pale green metal which has been badly disfigured by glass disease. The pushups in the bases are all conical or "mammariform," and show either blowpipe or glass-tipped pontil scars.

Two forms of neck or "finish" are evident from the light green glass fragments. One is a short, flaring top, cut with shears, and generally similar to the dominant case bottle finish (Figure 8.12*a*). Sheared tops of this general form appear to have been characteristic of pharmaceutical bottle manufacture during the first half of the 17th century.[88] The second form is a broad, flat, everted lip on a conical body (Figure 8.12*b*), a type dated at c. 1660.[89] It is unclear, however, whether these vessels were made in England, the Netherlands, or possibly France.

Of the six specimens, two were found in the area of the ramparts stairway, two in on the cellar floor of the adjacent Dwelling (1.1), and one in the east end of the Barracks (2.3). In addition, one clear neck fragment was uncovered beneath the paving of the courtyard, where it may date the early English occupation of 1629–1635. While the sample is too small to be statistically significant, its is interesting to note that pharmaceutical bottles follow the same general pattern of distribution as case bottles: they are absent from the main living areas of the the Dwelling (1.2) and the Officers' Quarters (2.1), and from the entranceway, but rather occur on surfaces thought to represent sleeping chambers in the upper floors of the Dwelling and the Barracks. This is a distribution which seems appropriate for personal health care products, and indicates that they were distributed throughout the fort's company.

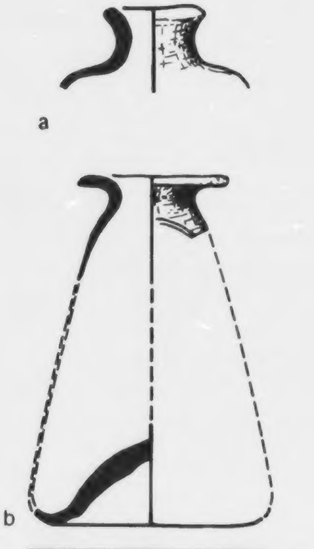


Figure 8.12 Pharmaceutical bottle fragments of light green glass: *a*, short neck, with a flared and cut off with shears; *b*, conical bottle with broad, everted lip and mammariform pushup bearing rough pontil scar.

At the Table

As was indicated in the analysis of ceramics, the tables of French nobility on the frontier were intended to maintain as closely as possible the service appropriate to their station in life, and showed that the higher ranks kept up with current fashions. Bright but simple Delft plates were available, although they seem to have been kept as much for show as for daily service. In Pentagoet I, food was kept warm with stylish, but gaudy chafing dishes, distilled spirits were served from elegant miniature barrel costrels, and drunk from polychrome mugs. Other gaily-painted serving dishes graced the table, some with relief molded decoration and ornate handles with multiple loops. These polychrome utensils seem to have gone out of fashion by Pentagoet III, but were replaced with simpler forms glazed in bright green. The prestige of the dining table was further enhanced by matching knives in Pentagoet I and matching stemmed glassware in Pentagoet III.

Exactly how the common soldiers or workmen at Pentagoet dined, however, is less clear from the archaeological record. A simple earthenware pitcher survives, but there are no comparable earthenware mugs for their cider or wine, or bowls for their stew.[90] The surprising absence in the archaeological collections of common tableware suggests that many of these objects were of perishable materials.

Glassware

Like most of the surviving items for the table, glassware was probably used only by Pentagoet's elite. The items are few in number, but conform to the high standards of elegance maintained by the frontier nobility. All were found in Pentagoet III contexts, and most of the specimens were recovered within buildings where they are presumed to have been smashed in place during the devastation of 1674.

Glassware on early colonial sites usually follows the styles and technologies established by Venetian glass blowers in the 16th and early 17th centuries. During the first half of the 17th century the art of making glassware *à la façon de Venise* spread to other European centers, particularly Belgium and France. Highly ornamented forms with wing-like appendages and hollow knops, which were once considered "luxury" items, gradually became more common. Along with these fancy forms, glassblowers adopted new methods for producing colorless metal which was resistant to mechanical shock.[91]

All of the seven vessels recovered at Pentagoet are of a clear metal which lacks the greenish tint of common glass. Yet none of the specimens are fluorescent under ultraviolet light, indicating that they do not contain lead as a clarifying agent, as did the products of the English glassmaker George Ravenscroft and his successors.[92] Thus the glassware seems to have been made of an early crystal, presumed to be *cristallo* or soda glass, which was developed before the perfection of lead glass in England in the third quarter of the 17th century.

TABLE 8.2
Minimum Counts of 17th Century Glassware

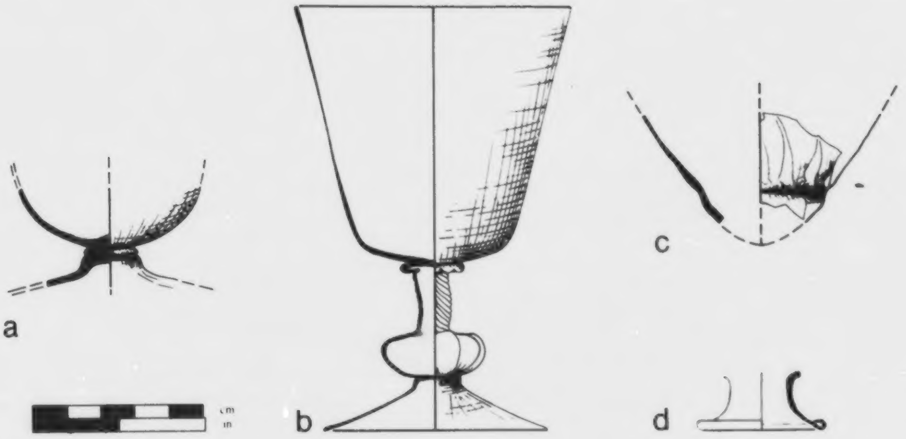
Description/basis for count	Fragments*	Count
Drinking glasses		
three part manufacture		
inflated knop, writhen stem	2	2
bowl fragments	(8)	
foot fragments	(3)	
additional stem fragments	(11)	
two part manufacture		
"snifter" bowl and foot	1	1
disc welds	2	2
additional bowl fragments	(6)	
"Compote" dishes		
flared foot	1	1
pattern molded bowl	(1)	
Unidentified clear (soda?) glass	(11)	
Total	46	6

*Figures in parentheses do not add to the minimum count.

The Pentagoet glassware is extremely thin and delicate—far more so than contemporary English products. At least three and probably five of the specimens are drinking glasses, while the remaining two apparently represent footed dishes (Table 8.2). These drinking glasses occur in two distinct forms. The simplest is a stemless vessel of two-part construction, resembling a modern brandy snifter. In the most complete specimen of this type, a round, hemispherical bowl is connected to a flared foot by means of a simple disc weld or "button." (Figure 8.13*a* and Figure 8.14*c*). Two additional button welds may represent additional examples of this form. Though still quite delicate, at 1.0 mm to 2.0 mm in thickness, these vessels are heavier than the remaining glassware at the site. The origin of this drinking glass type is unknown, and has not been reported either at Fort La Tour or at Champlain's Habitation.

The second type of drinking glass is a stemmed specimen with an inflated knop, manufactured in the Venetian style. Two identical examples have been found at Pentagoet with their stems intact, and sufficient fragments of the bowl and foot have been recovered to allow a complete reconstruction of the form (Figure 8.13*b* and Figure 8.14*a–b*). While they are not among the most elaborate of 16th- and 17th-century glass products in the Venetian style, they are certainly elegant glassware for the Acadian frontier. Glasses of this type are of three-part construction, the bowl, stem, and foot each made separately. The mid-section was apparently blown in a pattern mold with vertical ribs, and then inflated to form a ribbed discoid—a knop shaped like a patty pan squash. A straight, but writhen, stem was then formed by drawing out and twisting the remainder of the parison.[93] The glass blow-

Figure 8.13 Glassware: *a*, simple two-part "snifter;" *b*, three-part stemmed drinking glass with inflated, pattern molded knop and writhen stem, in the Venetian style; *c*, pattern molded bowl fragment, perhaps to a goblet or footed dish; *d*, hollow foot to a glass dish, or "coupella" in the Venetian style.



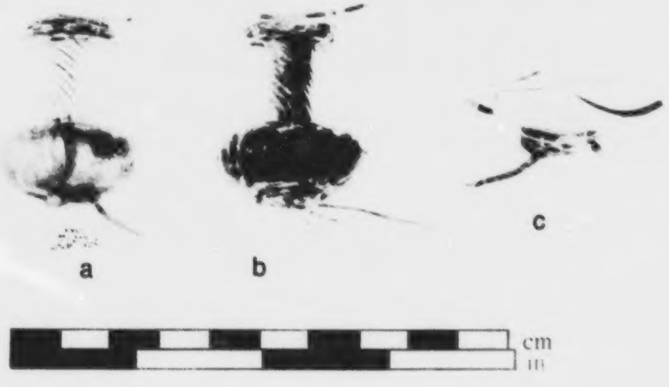
er terminated this stem in a carefully tooled button or collar. Though lightweight, this stem is the most rugged portion of the vessel, the glass measuring up to 1.3 mm thick. To this relatively substantial midsection were attached the extremely delicate foot and bowl, which measure as little as 0.6 mm thick—about the thickness of the glass in a lightbulb.

Although glasses with inflated, ribbed knops were common in the 17th century, Pentagoet's specimens are quite distinct from known English, Dutch, and Flemish examples. Typically, the stems of glassware from these sources lack the straight, writhen section, and instead the entire stem is comprised of one or more inflated knops and turnings.[94] On the other hand, straight, writhen stems have been found repeatedly on French colonial sites in contexts ranging from the 1670s to the 1740s, and have generally been attributed to glassware of French manufacture. Although missing its knop, a straight section of writhen stem identical to that from Pentagoet has been illustrated from Champlain's Habitation, and other sections with inflated knops of inverted baluster form have been noted there from later 17th-century contexts.[95] A nearly complete specimen with a ribbed knop of inverted baluster shape, probably dating to the 18th century, was unearthed nearby at La Place Royale.[96]

Evidently the Pentagoet specimens represent the early stages of an evolutionary sequence which may be useful for dating French colonial occupations. The general form—an inflated, ribbed knop beneath a straight twisted stem—continues well into the 18th century, retaining the relative proportions of the stem, knop, and collar. The principal change in style is the transformation of the knop from a patty pan-shaped discoid to an inverted baluster, a shape which became popular throughout Europe in the first quarter of the 18th century. However, the lightweight, hollow-stemmed French drinking glasses of the 1740s, represented at the Fortress of Louisbourg and other sites, stand in sharp contrast to the heavy English baluster and balustroid forms and their derivatives.[97]

Although a few examples have been found from the early phases of occupation at Champlain's Habitation, stemmed drinking glasses appear to have been relatively rare on French colonial sites prior to c. 1650. If d'Aulnay or his arch rival were provided with such drinking glasses, the remains have not been recovered either at Pentagoet or at Fort La Tour.[98] In southwestern Acadia, therefore, stemmed drinking glasses of the kind recovered at Pentagoet may prove to be a good indicators of the French reoccupation be-

Figure 8.14 Drinking glasses: *a–b*, matched pair of stems with inflated knops from the Dwelling (1.1) and the Barracks (2.2), *c*, snifter, from the Dwelling (1.1).



ginning in 1670.

There is least one other glassware form in the collection, represented by foot and bowl fragments. The foot is open, like a bottle neck, and flares outward; the edge is folded back over itself, leaving a cavity around the perimeter (Figure 8.13*d*). Such folded footrims are rare after 1750, and at Champlain's Habitation occur only in 17th-century deposits.[99] Hollow feet of the form represented are characteristic of the Venetian style, and may represent any one of a number of forms of footed serving vessel—a shallow cup or *coupella*, a "sweet meats" dish or *tazza*, a goblet, or a ewer.[100] A second specimen is a fragment from a pattern-molded bowl (Figure 8.13*c*). The broad rim has delicate, curving ribs, and flares out from a central, hemispherical cup. This too is an example of decoration in the Venetian style, and probably also is part of a footed vessel—perhaps a goblet or a *coupella*.[101]

Such fine Venetian-style glassware must have added a touch of elegance to the Acadian Frontier, and surely was not everyday tableware. A Dutch traveler to Jamestown in 1633 commented on the hospitality of Governor Harvey, saying "he proceeded with me to his house, where he bid me welcome with a Venice glass of sack."[102] That the glass was even worth mentioning indicates its rarity and the prestige attached to its ownership. But what of the many genre paintings, particularly the works of the Le Nain family, which frequently depict such drinking glasses in peasant households?[103] Social historian Pierre Goubert, along with many other scholars, is probably correct in asserting that this not a realistic portrayal, but rather an allegory:

> So, is the well-known painting by the brothers Le Nain a more accurate representation of the peasant family at table, with its white tablecloth, golden loaf, light-red wine and the honest simplicity of dress and furnishings? Clearly not, as the cloth and the wine are both out of place, and the bread is far too white. Surely those strict believers, the Le Nains, wanted merely to provide an obviously symbolic, slightly popular, version of the Last Supper, using the bread, the wine, and the whiteness of the cloth.[104]

But while elegant drinking glasses were not in everyday use by the peasantry, neither did they remain luxury items. By the third quarter of the 17th century, they appear to have been commonplace in the households of the rising bourgeoisis.[105]

Knives and fingers

Pentagoet's cutlery assemblage is distinctly 17th-century French—all knives and no spoons or forks—a pattern repeated at Champlain's Habitation.[106] Spoons, which must have been important eating utensils, do not occur in the artifact assemblage because they probably were made of wood. In England the guilds of spoonmakers supplied fig-shaped spoons of brass or latten to the colonies, some with plain "slipped stalk" handles, and others with tops resembling a signet seal or the figure of an apostle. These items are frequently found on 17th-century English sites, their bowls usually worn on one side from years of use.[107] But in 17th-century France only the relatively wealthy are said to have had metal spoons, and these were generally made of pewter.[108] Yet if the fort's elite used such items, the evidence does not appear in the archaeological sample. Alternatively, like the rest of the garrison, they may have eaten with wooden spoons. Forks, incidentally, did not come into general use before the end of the century either as eating or serving utensils, and so are absent on nearly all 17th-century colonial sites, both French and English.

TABLE 8.3
Cutlery

Description	Count
Steel knife blades	
rectangular tang	
round bolster, pointed blade, complete	1
round bolster, fragmentary	2
oval bolster, fragmentary	2
oblong bolster, fragmentary	3
cylindrical tang	1
scale grip	
nearly complete	1
handle only	1
clasp knife blade	1
unidentified blade section	1
Total knife blades	13
Knife and utensil handles	
bone	
socketed (for rat-tail tang), plain, complete	1
tubular (for round tange], plain, comlete	2
scale grips, incised, complete*	2
slate	
scale grip, plain, complete	1
Total handles	6
Cleaver, steel, complete	1
Ladle, wrought iron, complete	1

*matched pairs of scale grips found together counted as one.

While knives were the only eating utensils recovered at Pentagoet, they were still quite numerous: evidence for at least 13 specimens was found, enough to suggest that they were in general use by all the fort's complement (Table 8.3 and Figure 8.15). Originally these were tools not just for cutting, but also for spearing food, and for transferring it to one's trencher or plate and then to one's mouth. Consequently, the early knives of 17th-century France were pointed.[109]

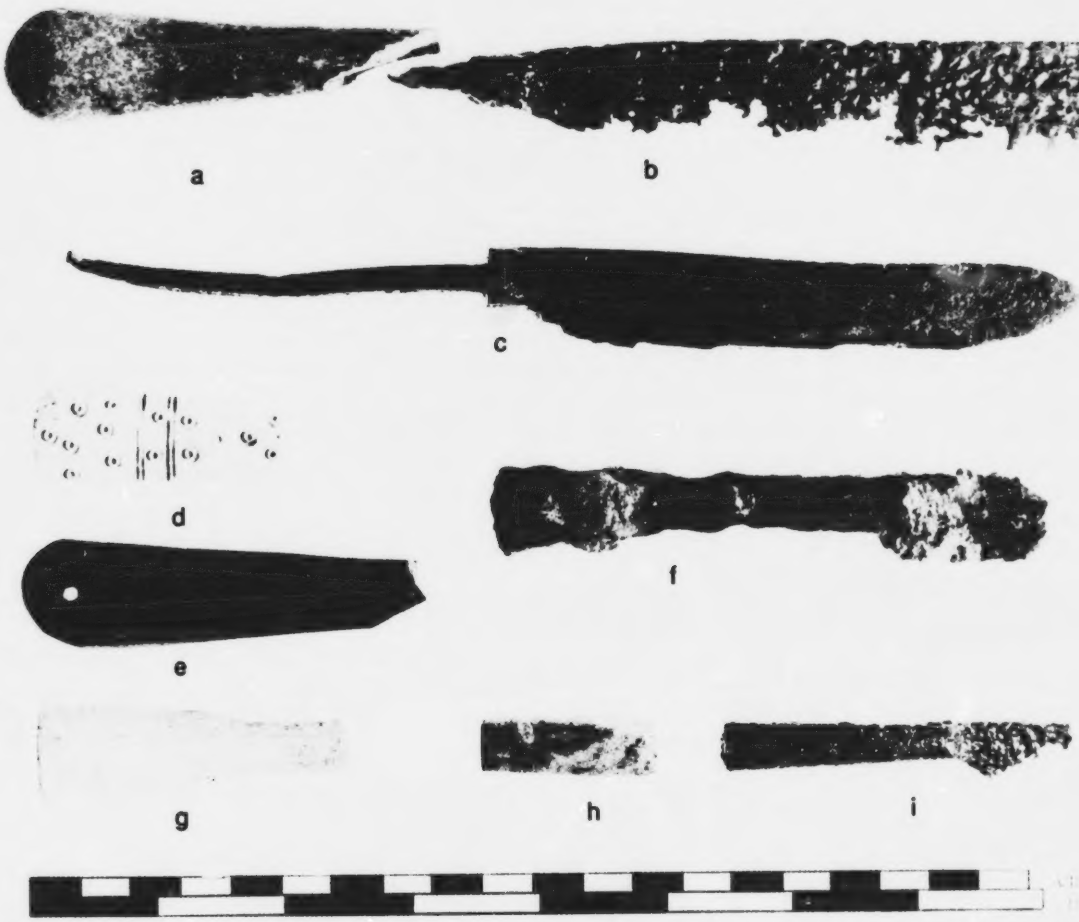


Figure 8.15 Knives: *a*, bone handle for rat-tail tanged knives; *b,c*, knives with rectangular rat-tail tangs; *d*, damaged bone scale, with decorative incising; *e*, unfinished replacement scale grip, apparently crafted from Pentagoet's own slate; *f*, nearly complete scale grip knife blade; *g–h*, plain tubular grips of bone, probably for round shanked knives; *i*, round shanked knife or scalpel.

It has generally been thought that knife designs became square or round tipped when their stabbing function was replaced by forks.[110] However neither pointed knives nor forks were used in the court of Louis XIV, whose fashions were emulated throughout Europe. The king determined to rid his court of pointed knives, and in 1669 he made it unlawful for cutlers to produce pointed knives, and for anyone to set a table with them or carry them. By the same token, he often refused to allow the use of forks in his presence.[111]

Eating with these limitations was not as difficult as it may appear. In the early 17th century, stews and potages traditionally were served on bread. The bread would absorb the liquid, leaving the meat and vegetables to be picked up and eaten with the fingers. Like many monarchs, Louis considered the fingers and knife the best tools for the table and, his own skill at eating chicken stew with his fingers without dripping it on himself earned him considerable admiration.[112] Thus it is apparent that for some time in France prior to the popular adoption of the fork, knives were blunt, and stew was finger food—eating practices undoubtedly followed in Québec and Acadia as well.

Unfortunately, only one of the knives at Pentagoet survives with the blade intact, and that is an earlier pointed specimen from Pentagoet I (Figure 8.16). While the forms of the remaining knife blades are indeterminate, the Pentagoet III specimens probably followed Louis' dictum requir-

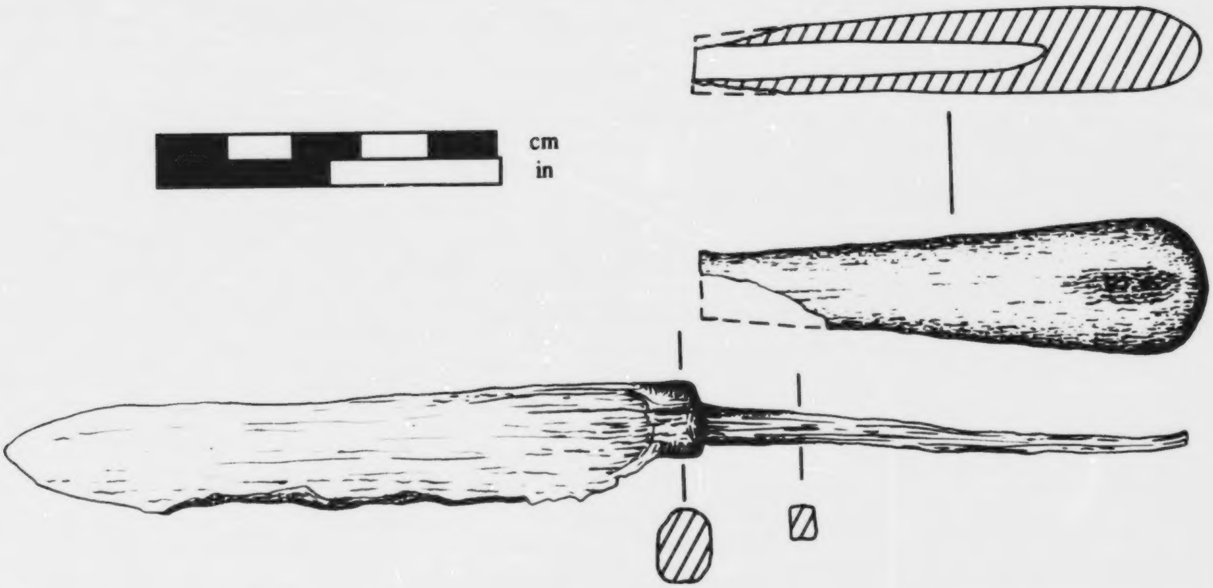


Figure 8.16 Complete tanged knife from Pentagoet I, shown with a bone handle (found separately). The knife edge has curled over through severe misuse.

ing snubbed blades. It was, after all, an example followed locally by the English; the sole complete example from the Clarke and Lake Company trading post on the Kennebec has just such a fashionable squared-off blade.[113]

Most of the handles of 17th-century utensils appear to have existed in two more or less equally popular forms: tanged and scaled (Figures 8.15, 8.16, and 8.17). The former is the simpler, and perhaps older of the two. The haft of the knife is created from a square sectioned "rat tail" tang which is inserted into a one-piece, socketed, bone handle. The second design is a sandwich form, made by riveting two bone panel grips or "scales" on either side of the flat shank of the knife, much like a modern pocket knife handle. Both hafting types occur at Pentagoet and at Champlain's Habitation.[114] While they occur on matching knives and forks at later sites, it is apparent in this period that the utensils were knives.

A third, unusual, knife type appears at Pentagoet which may have parallels in the ornate handles found at other contemporary sites. This knife or scalpel blade is characterized by its solid, cylindrical shank or tang, which is squared off at the butt end (Figure 8.15*i* and Figure 8.17*e*). This may correspond to an elaborate cylindrical handle made of three concentric sleeves from Fort La Tour; the inner two are of brass, and the outermost is of copper and bears an intricate curvilinear decoration in relief.[115] Handles which appear to be of similar construction, and decorated with gold and silver inlay, have been found at Martin's Hundred in Virginia.[116] At Pentagoet, two cylindrical bone tubes may be more modest handles for this knife style (Figure 15*g*–*h*).

The eight rat-tail tanged knives represented at the site were hafted with one-piece bone handles. The sole surviving specimen is oval in section, expanding towards the back, with a rounded butt end (Figure 8.16). Yet judging from the variation in shape of the collar or "bolster," where the blade joins the haft, there must have been considerable variety in cross-sectional outline of the handle (Figure 8.17). As for the blades themselves, there is considerable variety in detail, some having thin bolsters amounting to little more than a disc-like collar or flange, while others have long, narrow bolsters. No two are exactly alike, and there is every reason to suspect that these were private property, the "individually-owned knives, which would be wiped on the sleeve or the thigh after use."[117] Unlike other items of tableware, these simple knives were probably owned by workmen or soldiers.

The scale grip utensils, however, tell a different story. These include two matching incised bone handles, presumed to be knife parts: one complete specimen from refuse outside the northwest corner of the curtain, and a single, damaged scale found in the Smithy (2.2) near a brass badge bearing d'Aulnay's family crest (Figure 8.18). Note that these Pentagoet I handles were simply but attractively incised with parallel lines and a pattern of circles, the latter drilled with a tiny version of a "button bit," similar to that used to cut

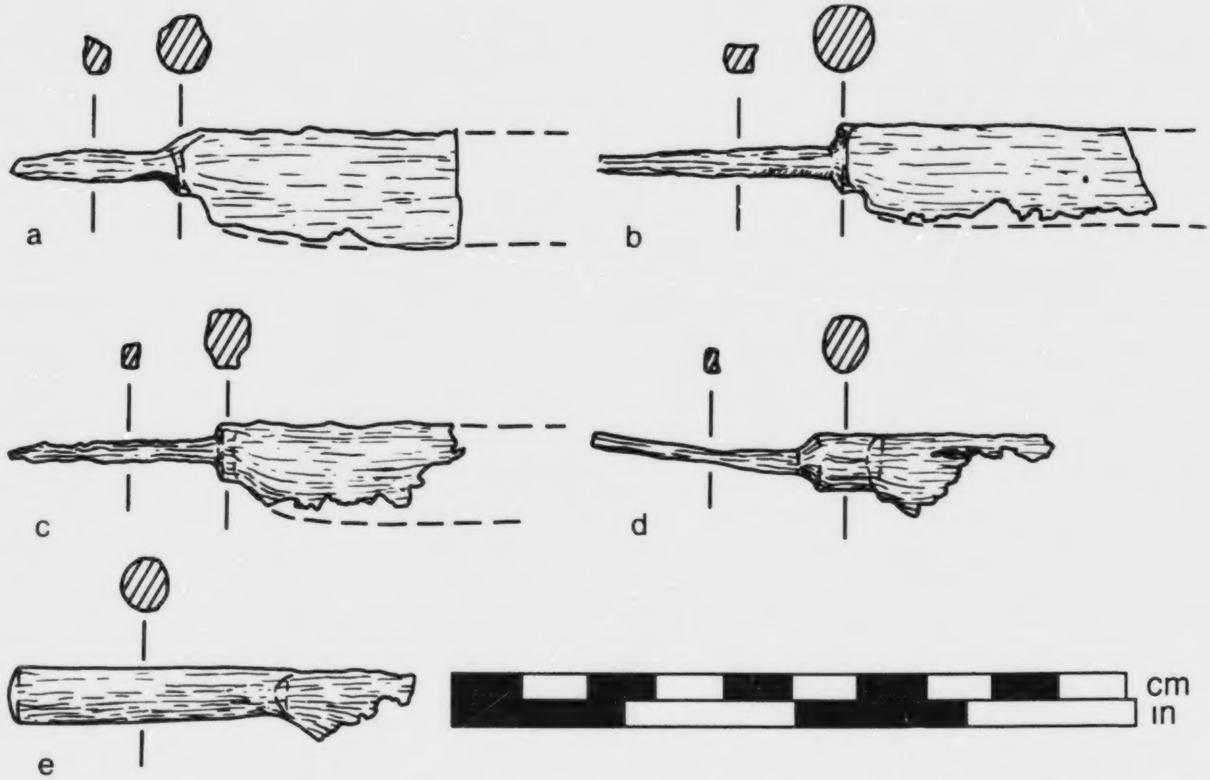


Figure 8.17 Pentagoet I and III tanged knives: *a–d*, rat-tail knives with oval, oblong, and round bolsters, *e*, round tanged knife or scalpel, probably once fitted with a decorative cylindrical handle.

button blanks from bone or shell.[118] Incised handles are not unusual, particularly in the following centuries, but one can argue that for knives, as well as for stemmed drinking glasses and other expensive items not provided in bulk, matched sets imply prestige.

Outnumbered by tanged utensils, scale grip knives may have been fairly expensive; in all, representatives of only three grips and one knife blade were found. Like everything else of value on the poorly supplied Acadian frontier, they had to be maintained and repaired. One of the decorated scales, which had been damaged, apparently was discarded on the Smithy floor (2.2) when the knife was being refitted with a new one (Figure 8.15*d*). Beneath the foorboards of main room of the Dwelling (1.2), just such a replacement was found (Figure 8.15*e*). Remarkably, it was fashioned from a piece of the fort's own building slate.

Finally, the outline of the panel grips may prove to be characteristic of French cutlery of the first three quarters of the 17th century. The Pentagoet grips expand gradually toward the rear, terminating with a slight flare at the butt, a style which is also preserved in the outline of the metal shanks of the cleaver and one of the scale-handled knives (Figure 8.5*a* and Figure 8.15*f*). A plain scale grip handle from Champlain's Habitation phase I (1608–1624) is of identical shape.[119]

Sanitation

Recorded comments on sanitation in New France and Acadia are seldom made without prejudice or ethnic bias. Still, sanitation habits reconstructed for rural Québec in the early 19th century can not have been worse than at Pentagoet:

> Habitants drank more than one from the same cup, they passed pipes from mouth to mouth, they spat on the floor, and they chewed food before transferring it to their babies' mouths. Dead animals were left to rot where they dropped in the fields. Latrines

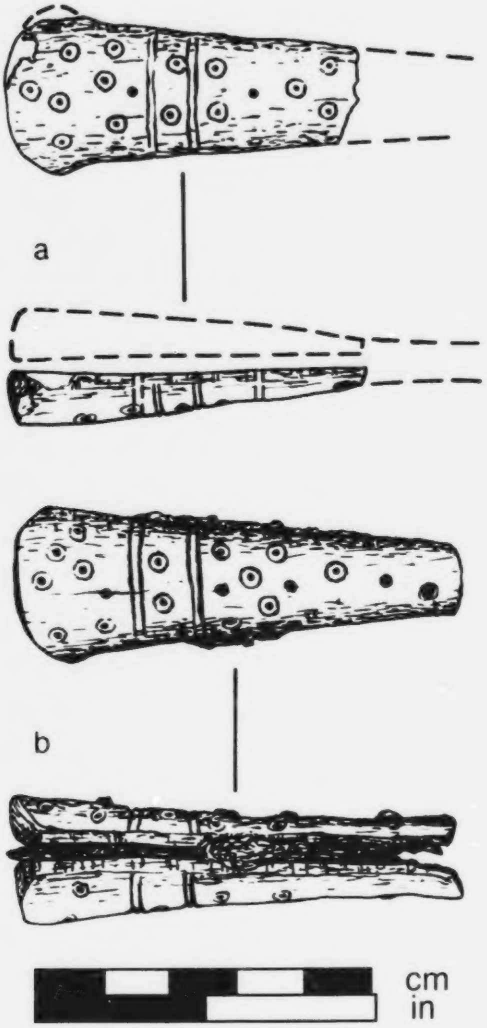


Figure 8.18 Bone scale grips from Pentagoet I utensils showing matching decoration: *a*, from the Smithy (2.2); *b*, from a redeposited midden just outside the northwest curtain.

were virtually unknown as late as the 1830s. Moreover, wells were regularly polluted when the spring run-off flushed barnyard mess into the drinking water. Those who could afford it brewed beer for their families when the snow melted."[120]

That habitants still drank out of the same cup and smoked the same pipe at this period should not come as a shock. But the remaining observations represent true health hazards which were probably similar to those faced earlier at Pentagoet. Attempts to locate latrines during the final season of excavation proved unsuccessful probably because there were none. After all, the most putrid trash was found strewn on the floors and cellars of all the residences or thrown right outside the doorways. Housecleaning was infrequent, at best, and only the Officers' Quarters (2.1) and, to a lesser degree, the main room of the Dwelling (2.1) seem noticeably clearer of sheet refuse than the surrounding paving. When new construction was required, whether it was the remodelling of the Smithy into a Barracks or the building of a new curtain wall in masonry, the new structure was placed right on top of the garbage as if it were solid, sanitary land fill.

While there may have been periodic efforts to discard refuse outside of the fort, it seems to have been common practice to dump it into the cellar or in unused portions of the parade. The distribution of Pentagoet I garbage in the immediate vicinity of the well could only have fouled it, requiring the excavation of a second well within the cellar of the Magazine. While the image of life in this fouled nest is unappealing today, the inhabitants were probably no worse off here than in Europe. Indeed, if the dismal images of 17th-century peasant life portrayed by modern historians like Pierre Goubert and Emmanuel Le Roy Ladurie are to be-lieved, the Pentagoet garrison was probably better nourished and freer from disease than their European compatriots.[121]

◆

Notes to Chapter 8: Foodways

1 Arthur E. Spiess, "Draft Report on the Mammal and Bird Fauna from Str. 1.1 (Officers' Quarters Cellar) and Str. 1.2 (Officers' Quarters Living Area), Pentagoet 1982 Excavations," ms. on file, Historic Archaeology Laboratory, University of Maine. Catherine Carlson, "Summary Report on the Analysis of the Fish Bone from Fort Pentagoet (ME084-3)," February, 1983, ms. on file, Historic Archaeology Laboratory, University of Maine. The structure referred to as the "Officers' Quarters" is now recognized as the "Dwelling."

2 A thorough analysis of this midden proved to be beyond the practical limits of the current project, though it would be a valuable study to undertake in the future. These preliminary impressions were arrived at by examining 15 sample bags containing several hundred bone fragments, and ranking in order their principal identifiable components. Consequently, these data are used only for gross comparison of the relative frequency of major genera represented.

3 Obviously these element counts do not correspond directly to percentages of individual animals represented, much less to available amounts of meat, calories, or protein provided in the diet. They are merely a fingerprint of subsistence—a pattern which can be used to compare with other sites in order to discern significant differences or changes.

4 The Champlain's Habitation collection also includes a few amphibians and reptiles, not present at Pentagoet. Anne Meachem Rick, "Étude Zooarchéologique du Site de l'Habitation de Champlain, Periodes 1608–1632 et 1675–1700," in Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec: Étude de la Collection Archéologique (1776–1980)*, Dossiers 58, Les Publications du Québec, (Québec, 1985), Appendix 2, pp. 309–356.

5 Because the Fort la Tour fauna have not been separated from the later 18th-century fauna at Portland Point, it is not possible to compare these remains meaningfully with the Pentagoet data. However the makeup of the combined faunal summary of 1028 bones looks nearly identical to that from Pentagoet III. Surprisingly, in contrast to the sample from Pentagoet I, wild mammalian species comprise only a very small percentage of the sample. Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 221–226 and Table 4.

6 Although horses were imported to Port Royal as early in 1610, there is no mention of them in Québec until 1647 when the governor imported a single horse. No horse remains have been counted among the faunal remains at Champlain's Habitation. Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain," pp. 324, 350, and 351, Table 6. Goubert claims, somewhat unconvincingly, that French peasants in the 17th century, who ate virtually anything else which was not immediately poisonous, did not eat horse meat because they considered it to be "tainted." Pierre Goubert, *The French Peasantry in the Seventeenth Century*, Cambridge University Press, (Cambridge, 1986), p. 88.

7 Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain," pp. 322, 335, Table 2. In colonial Virginia, however, cattle remains often outnumber pig remains even in the earliest periods. William M. Kelso, *Kingsmill Plantations, 1619–1800: Archaeology of Country Life in Virginia*, Academic Press, (Orlando, 1984), p. 183, Figure 125, and pp. 215–222, Tables 6–16.

8 Jean-Jacques Hemardinquer, "The Family Pig of the Ancien Regime: Myth or Fact?" *Food and Drink in History*, John Hopkins University Press, (Baltimore, 1979), p. 50.

9 John Josselyn, *An Account of Two Voyages to New England*, William Veazie, (Boston, 1865), p. 147.

10 The minimum number of individual pigs calculated for these remains is also twice that of cattle. See Appendix G, Table G.1.

11 Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain," pp. 325, 351, Table 6. Many of these cattle, sent by De Monts to Lescarbot, died upon arrival in Québec.

12 See Appendix A.

13 Stephen Mennell, *All Manners of Food*, Basil Blackwell, Ltd., (Oxford, 1985), inside cover, a plate reproduced from Isabella Beeton's *Book of Household Management*, (1861).

14 Although many of these sheep died en route, a substantial proportion apparently survived. Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain," p. 350, Table 6. The sheep/goats are also interpreted as sheep at Champlain's Habitation. Ibid., pp. 326, 335, Table 2.

15 J. C. Drummond and Anne Wilbraham, *The Englishman's Food*, Jonathan Cape, (London, 1939).

16 For more on the use of dogs by the French, especially as watch dogs and as couriers, see Mark A. Mastromarino, "'Cry Havoc and Let Loose the Dogs of War': Canines and the Colonial American Military Experience," M.A. thesis, Department of History, The College of William and Mary, Williamsburg, Va., p. 89.

17 Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain," p. 324.

18 René Baudry, "Andigné de Grandfontaine,"*DCB*, vol. 1, p. 63. Emerson Baker, "Acadian Sites," paper delivered at the annual meetings of the Society for Historical Archaeology, Boston, 1985. Goubert suggests that cats may have been eaten by French peasants in the 17th century when "there happened to be more of them than were necessary for keeping down mice in the granaries and barns." Pierre Goubert, *The French Peasantry in the Seventeenth Century*, p. 88. Here too, however, the motive was probably famine, rather than population control.

19 Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain," pp. 319, 325, and Table 6.

20 Spiess was unable to make this determination with any certainty. Arthur Spiess, "Mammal and Bird Fauna from Pentagoet 1982 Excavations," p. 5.

21 William F. Ganong, *The Description and Natural History of the Coasts of North America by Nicolas Denys*, The Champlain Society, (Toronto, 1908), p. 130, 131.

22 Ibid., pp. 361–363. John Clarence Webster, *Relation of the Voyage to Port Royal in Acadia or New France by the Sieur Dièreville*, The Champlain Society, (Toronto, 1933), p. 139n.

23 Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain," pp. 322, 323.

24 William F. Ganong, *Denys: Coasts of North America*, p. 109.

25 Stephen Mennell, *All Manners of Food*, inside cover.

26 Anne Meachem Rick, "Étude zooarchéologique du site de

l'Habitation de Champlain," pp. 317–321.

27 William F. Ganong, *Denys: Coasts of North America*, pp. 154–155.

28 Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain," pp. 315–317, and Table 2.

29 Sturgeon has yet to be identified in the Pentagoet I remains, but this is probably only due to the preliminary nature of the analysis of that sample.

30 See Appendix B, "Description of the River and Country of Pentagoet and Other Surrounding Places," (1671), no. 32. For the purchase of English fish, see "Journal du voyage de M. Henri Brunet en le Navire Callessien par les ordre de Monsieur Lintendant Colbert de Terrou, 15^e Juin–25^e Dec, 1673" PAC, MG7 1A5, vol. 106(864), p. 42.

31 Alaric Faulkner, "Archaeology of the Cod Fishery: Damariscove Island," *Historical Archaeology*, (1984), vol. 19, no.2, p. 67.

32 Emerson W. Baker, *The Clarke and Lake Company*, pp. 37–38. Baker also points out that on the English fishing station at Sagadahoc Island the fish remains were mostly cod, including heads, suggesting that there, as at Pentagoet, the fishermen consumed fresh fish. Emerson W. Baker, pers. comm., February 19, 1987. Mark H. Hedden, "Analysis of Fish Bone Sample from ME 168-3 (Sagadahoc Island)," ms. on file, Maine Historic Preservation Commission.

33 "– De La Riviere De Quelibecq [*sic*] Le 13.^{e} X^{bre}: 1674'" PAC, MG7 1A5, vol. 106, no. 864, pp. 59–60.

34 William F. Ganong, *Denys: Coasts of North America*, pp. 139, 140, 171. As he notes on p. 174, even lobsters were considered emergency food.

35 Ibid., pp. 442–443.

36 Ibid., *Denys: Coasts of North America* , pp. 124, 154, 396–398.

37 See Appendix B, no. 19.

38 See Appendix A.3, 'Key to Grandfontaine plan of Pentagoet.' The bread oven, "R," was apparently destroyed by souvenir hunters in the early 19th century.

39 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, pp. 83–84.

40 "John Winter to Robert Trelawny, June 18th, 1634," *The Trelawny Papers, DHSM*, vol. 3, (Portland, 1884), p. 29.

41 Raymond Douville and Jacques Casanova, *Daily life in Early Canada*, Macmillan, (New York, 1967), p. 55.

42 "Lettre de Talon du Ministre Colbert, November 11, 1671," *RAPQ*, (Québec, 1932), p. 163.

43 See Appendix A.

44 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, p. 91

45 "Abrege du Roole des Familles, November 8, 1671," PAC, Ottawa, microfilm reel F 768, G 466, p. 9.

46 Jean-François Blanchette, *The Role of Artifacts in the Study of Foodways in New France, 1720-1760*, History and Archaeology no. 52, National Historic Parks and Sites Branch, Parks Canada, (Ottawa 1981), p. 26. See also I. M., *A New Booke of Cookerie* [1615], The English Experience, no. 479, Da Capo Press, (New York, 1972).

47 Jean-François Blanchette, *The Role of Artifacts in the Study of Foodways in New France*, p. 26.

48 I. M., *A New Booke of Cookerie*, p. 6.

49 Ibid., p. 78

50 Ibid., pp. 30-31.

51 Raymond Douville and Jacques Casanova, *Daily life in Early Canada*, pp. 57.

52 I. M., *A New Booke of Cookerie*, p. 5.

53 The *Système de poids de marc de Troyes*, was in general use from the middle of the 14th century to about 1840. The Troy *livre*, was equal to 489.41 grams, although such precision of calibration probably was not achieved in the standards in daily use in the 17th century. Even so, the weight of the lead specimen is almost exactly half this figure. Lester A. Ross, *Archaeological Metrology: English, French and Canadian Systems of Weights and Measures for North American Historical Archaeology*, History and Archaeology no. 68, Parks Canada, (Ottawa, 1983), pp. 58, 59. Weights similar to the Pentagoet specimen are still used in North African food markets today.

54 Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 283, 284 and Plate 88.

55 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, p. 41.

56 Emerson W. Baker, *The Clarke and Lake Company*, p. 35.

57 Norman F. Barka, "Historic Sites Archaeology at Portland Point," Plate 87.

58 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, p. 100, Table 10. Evidence for brass kettles at Champlain's Habitation is sketchy at best, and they do not appear to have had a significant role in food preparation.

59 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, p. 41.

60 Ibid., p. 87.

61 Scale drawings of *barricas* recovered from the wreck of the Spanish Basque whaling ship San Juan which went down in 1565 in Red Bay, Labrador, indicate that the heads of these hogsheads ranged from 45.5 cm to 65 cm in diameter. The supposed Pentagoet barrel or hogshead cover, at 57.2 cm, falls midway in this range. While the Spanish whale oil hogshead were not necessarily identical to those in use at Pentagoet a century later, they were probably quite similar. Lester A. Ross, "16th-Century Spanish Basque Coopering," *Historical Archaeology*, (1983), vol. 19, no. 1, p. 1 and Figures 6, 7, 13, 14, and 20.

62 "John Winter to Robert Trelawny, June 18th, 1634," *The Trelawny Papers, DHSM*, vol. 3, (Portland, 1884), p. 25.

63 "Thomas Gorges to Henry Gorges, July 19, 1640," in Robert E Moody, ed., *The Letters of Thomas Gorges, Deputy Governor of the Province of Maine, 1640–1643*, Maine Historical Society, (Portland, 1978), p. 1.

64 "Journal du voyage de M. Henri Brunet en le Navire Callesien par les ordre de Monsieur Lintendant Colbert de Terrou, 15^e Juin–25^e Dec, 1673" *PAC*, MG7 1A5, vol. 106, no. 864, pp. 42–44.

65 George A. Wheeler "Fort Pentagoet and the French Occupation of Castine," *MeHS*, Series II, vol. IV, (Portland, 1893), p.119.

66 Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 276, 277, Plate 71(5–6). The eight spigots came from the cellar of the Charles Marquis House (1675–1701). Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 120, 121, and Figures 82 and 83.

67 Cf. Stanley South, *Method and Theory in Historical Archaeology*, Academic Press, (New York, 1977), pp. 168–171.

68 As with the ceramics count, calculations of the minimum number of vessels in Pentagoet I and II contexts are probably very close to the actual number of vessels represented in the excavation, as there has been relatively little scattering of the bottles, and corresponding necks and bases generally survive close to each other. This contrasts with the Post-Pentagoet sub-assemblage which is both highly fragmented and widely dispersed.

69 Cf. Stanley South, *Method and Theory in Historical Archaeology*, pp. 170–171. See also Lee Hanson and Dick Ping Hsu, *Casemates and Cannonballs: Investigations at Fort Stanwix, Rome, New York*, Publications in Archaeology no. 14, National Park Service, (Washington, 1975), Table 24, p. 129.

70 Ivor Noel Hume, *A Guide to Artifacts of Colonial America*, Knopf, (New York, 1970), pp. 63–68.

71 The popularity of case bottles on 18th-century frontier/military sites is part of a pattern discussed by Stanley South in *Method and Theory in Historical Archaeology*, pp. 170, 171.

72 Cf. Ivor Noel Hume, *A Guide to Artifacts of Colonial America*, p. 62 and Figure 14.

73 The 18th-century Staples-Gray occupation of this site yielded a similar blowpipe empontilled case bottle base.

74 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 116–118, Figure 77(1–6). John L. Cotter and J. Paul Hudson, *New Discoveries at Jamestown: Site of the First Successful English Settlement in America*, National Park Service, (Washington, 1957), pp. 45–47, and Figure on p. 47. Vernon G. Baker, "Glass Wine Bottles," in *Burr's Hill: A 17th Century Wampanoag Burial Ground in Warren Rhode Island*, Susan G. Gibson, ed., Haffenreffer Museum of Anthropology, Brown University, (Providence, 1980), p. 61, Figure 38.

75 At Fort La Tour, two case bottles were found in association with the early French occupation, and an additional five, found in undatable contexts, may date to this period as well. Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 341–343 and Figures 68 and 105. The short-necked, everted lip form also appears on early-to-mid 17th-century English sites with some regularity. A specimen from a plantation in Newport News Virginia, dated c. 1640, is illustrated in Ivor Noel Hume, "Glass in Colonial Williamsburg's Archaeological Collections," *Colonial Williamsburg Archaeological Series*, no. 1, The Colonial Williamsburg Foundation, (Williamsburg, 1969), Figure 22.

76 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, p. 116.

77 Both forms of these case bottles are described for Fort Michilimackinac by Margaret Kimball Brown, "Glass from Fort Michilimackinac: a Classification for Eighteenth Century Glass," *The Michigan Archaeologist*, vol. 17, nos. 3–4, (1971), pp. 108–112 and Table 3, and Figures 1*b* and 3. Good examples of pale blue flacons are shown in Jane E. Harris, "Eighteenth-Century French Blue-Green Bottles from the Fortress of Louisbourg," *History and Archaeology*, no. 29, Parks Canada, (Ottawa, 1979), pp. 96-98, and Figures 5-9. Some blue glass from flacons was found at Pentagoet, but could not be clearly associated with the 17th-century occupation of the fort.

78 For the same reason, these prime living areas were also relatively free of chipping debris from gunflint manufacture.

79 At least four other dark green wine bottles are represented by scattered fragments at the site, but nearly all can be identified as later forms and were found in 18th- and 19th-century contexts. Occasional body fragments of light green, round-sectioned bottles were evident, but no diagnostic parts were found in the Pentagoet occupations.

80 Cf. Ivor Noel Hume, "Glass in Colonial Williamsburg's Archaeological Collections," Figure 23, and Vernon G. Baker, "Glass Wine Bottles," pp. 62–65.

81 John L. Cotter and J. Paul Hudson, *New Discoveries at Jamestown*, pp. 45–47, and Figure on p. 46, top left. Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 344–355. Francoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 199, and Table 16, and Figure 80.

82 Not all of the 42 Burr's Hill graves date from historic periods. Susan G. Gibson, "Introduction," *Burr's Hill: A 17th Century Wampanoag Burial Ground in Warren Rhode Island*, Susan G. Gibson, ed., Haffenreffer Museum of Anthropology, Brown University, (Providence, 1980), pp. 9–21 and Vernon G. Baker, "Glass Wine Bottles," pp. 62–66. Although the majority of the Burr's Hill specimens are more spherical, and show no tendency towards carination, a few specimens do exhibit this feature, and one appears to be identical in profile to the Pentagoet and Champlain's Habitation examples. See Type D, Figures 43 and 44.

83 Obviously this bears on the current issue of what constitutes "trade goods."

84 A general discussion of this observation, with several pertinent references, appears in Vernon G. Baker, "Glass Wine Bottles," p. 61.

85 Ibid., p. 62.

86 It is not clear, however, that this distinction is valid as early as the third quarter of the 17th century. Olive Jones, "Glass Bottle Push-Ups and Pontil Marks," *Historical Archaeology*, (1971), vol. 5, pp. 69, 72.

87 Such proportions are evident on one complete specimen recovered from Burr's Hill. Susan G. Gibson, ed., *Burr's Hill: A 17th Century Wampanoag Burial Ground*, p. 134, Figure 123.

88 Cf. Ivor Noel Hume, *A Guide to Artifacts of Colonial America*, Figure 17(3–6).

89 Ibid., Figure 17(7).

90 Pewter ware, if it was present at all in the site, should have appeared among the materials recycled in the workshop. It did not.

91 Raymond Chambon, *L'Histoire de la Verrerie en Belgique du II*^{me} *siècle à nos jours*, Éditions de la Librairie Encyclopedique, (Brussels, 1955), pp. 112–117. Recent excavations in front of the Louvre in Paris by Jorge Barrera and others have produced quantities of this ornamental glassware from early to mid 17th-century contexts.

92 Ravenscroft was apparently the first in England to clarify glass with lead according to Ivor Noel Hume, "Glass in Colonial Williamsburg's Archaeological Collections," p. 13. In contrast to the specimens from Pentagoet, a control group of ten English lead glass specimens, dating from the second half of the 18th century, were found to glow a bright greenish yellow when examined under short wavelength ultraviolet light.

93 Although the technology is entirely different, the effect is rather similar to the "air twist" popularized by the British in the second quarter of the 18th century. The

English technology involved puncturing a solid disc or slug of glass with a pattern of holes, and then drawing it out while twisting, thus producing a stem with bubbles arranged in concentric helices. Except for the bubbles, however, the stem was solid, unlike the inflated, pattern-molded knops of Venetian glassware.

94 Several drinking glasses recovered from comparable periods at Jamestown show this heavy ornamentation, as is shown in John L. Cotter and J. Paul Hudson, *New Discoveries at Jamestown*, p. 44, top figure. Plainer specimens have been recovered at Aldgate in England, but these still lack the writhen stem of the Pentagoet specimen. Cf. R. J. Charleston and Allan G. Vince, "Excavations at Aldgate, 1974: the Glass," *Post-Medieval Archaeology*, (1984), vol. 18, p. 89, Figure 45(15). Other examples of inflated knops without writhen stems were made in Belgium. Raymond Chambon, *L'Histoire de la Verrerie en Belgique*, Plate VIII(27–31). The numerous representations in Dutch genre paintings and the actual specimens in London's Victoria and Albert Museum also lack writhen stems.

95 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, Figure 78(4).

96 Michel Lafrenière, and François Gagnon, *À la Découverte du Passé: Fouilles à la Place Royale*, Photo 43, top left.

97 Cf. E. Ann Smith, "Glassware from a reputed 1745 siege debris context at the Fortress of Louisbourg," *History and Archaeology*, no. 55, Parks Canada, (Ottawa, 1981), pp. 184 185, Figure 34. Hollow writhen stems of cigar shape, were also made in France in the 18th century, according to Paul McNally, "French Table Glass from the Fortress of Louisbourg, Nova Scotia," *History and Archaeology*, no. 29, Parks Canada, (Ottawa, 1979), Figure 11. See also Paul McNally, "Table Glass in Canada 1700–1850," *History and Archaeology*, no. 60, Parks Canada, (Ottawa, 1982), Figure 6.

98 The later Simonds, Hazen, and White trading post, on the site of Fort la Tour, did indeed yield some 18th-century English stemmed glassware, but this could easily be be distinguished from earlier 17th-century products. Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 356–358.

99 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, p. 104.

100 Cf. Karel Hettes, *Old Venetian Glass*, Spring Books, (London, 1960), Plates 3, 11, 17, 20, and 31.

101 Ibid., Plates 20 and 28.

102 Ivor Noel Hume, "Glass in Colonial Williamsburg's Archaeological Collections," p. 10.

103 See Phillipe Erlanger, *Peintures de la Réalité*, Galerie Charpentier. (Paris, 1946), and Paul Firens, *Les Nains*, Librairie Floury, (Paris, 1933).

104 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, pp. 82, 83.

105 The growing popularity of these items is apparent from their ever increasing frequency in the 17th-century sediments recently excavated near the Louvre. Jorge Barrera, pers. comm., (March, 1985).

106 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp.107–108, Table 13, and Plate 81. Unfortunately, the cutlery at Fort La Tour is not separated by component, and in any case most of the cutlery seems to belong to the 18th-century Simonds, Hazen and White trading post. Norman F. Barka, "Historic Sites Archaeology at Portland Point," Plates 81, 82, and 85. Please note that in the discussion of cutlery which follows, the authors are indebted to former University of Maine student Ellie Cowie for her research.

107 Emerson W. Baker, *The Clarke and Lake Company*, Plate 12*b–c*. Helen B. Camp, *Archaeological Excavations ad Pemaquid, Maine: 1965–1974*, The Maine State Museum, (Augusta, 1975), Figure 36(1,2).

108 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, p. 41.

109 Edgar B. Frank, *Old French Ironwork*, Harvard University Press, (Cambridge, 1950), p. 170.

110 Ivor Noel Hume, *A Guide to Artifacts of Colonial America*, p. 178. Barbara J. Wade, *Cutlery from the Fort at Coteau-du-Lac*, Québec, History and Archaeology no. 61, Parks Canada, (Ottawa, 1982), p. 6.

111 Erik Lassen, *Knives, Forks, and Spoons*, Host and Sons, (Copenhagen, 1960), p. 17. C. T. P. Bailey, *Knives and Forks*, The Medici Society, (London, 1927), p. 29.

112 Fernand Braudel, *The Structures of Everyday Life*, vol. 1, Harper & Row, (New York, 1981), pp. 205–209.

113 Emerson W. Baker, *The Clarke and Lake Company*, Plate 10*a*.

114 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp.107–108, Table 13, and Plate 81.

115 Norman F. Barka, "Historic Sites Archaeology at Portland Point," p. 276, Fig. 59, and Plate 83.

116 Ivor Noel Hume, *Martin's Hundred*, Knopf, (New York, 1982), p. 118. See also Ivor Noel Hume, "Search for a Century," The Colonial Williamsburg Foundation, VHS Videocasette 58:30, (Williamsburg, 1984).

117 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, p. 41.

118 Henry C. Mercer, *Ancient Carpenters' Tools*, Horizon Press, (New York, 1975), p. 197, Figure 173*d*.

119 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, Plate 81(5). The familiar "pistol grip" handle also occurs in French cutlery from the 14th century, and one such specimen was recovered at Champlain's Habitation, Ibid., Plate 81(4). See also C. T. P. Bailey, *Knives and Forks*, The Medici Society, (London, 1927), p. 18. At Pentagoet, however, all of the handles are symmetrical.

120 Allan Greer, *Peasant, Lord and Merchant: Rural Society in Three Quebec Parishes 1740-1840*, University of Toronto Press, (Toronto, 1985), pp. 69–70.

121 Pierre Goubert, *The French Peasantry in the Seventeenth Century*, pp. 92–96. Emmanuel Le Roy Ladurie, *The Peasants of Languedoc*, University of Illinois Press, (Urbana, 1974).

Chapter 9

Personal Belongings and Trade Goods

Completing this portrait of early Acadian lifeways are a few additional necessities—clothing, accessories, coins and other trappings and amusements—by which the fort's company attempted to recreate and maintain a European way of life in the wilderness. Equal in importance, although less in evidence, are the European items offered to the natives in exchange for goods and services. Most of these supplies, whether destined for the French or for their native clients, had to be imported, usually through French merchants such as Henri Brunet.

Brunet is of special importance, for he dealt repeatedly with Grandfontaine and Chambly in the final years of Pentagoet, and his journal and copybook record the goods most in demand in settlements along the coast of Acadia. On February 4, 1675, Brunet was in Boston, catching up on a backlog of business correspondence. Pentagoet had been destroyed six months earlier, and on that day he wrote numerous letters to his family, friends, and business associates, informing them of the destruction of Pentagoet and Jemseg and of the search for the Flemish pirates responsible for the deed. The Indian trade, for the time being, was at a standstill, but he presumed that the setback for French settlement was only temporary. Based upon his experiences during the previous two seasons, he made out a requisition for goods to trade with the settlers along the coasts of Acadia and thereafter in "The American Isles"—the Newfoundland fisheries (Appendix H).

Brunet's shipment was clearly not Indian trade goods, but materials needed by the European settlers (Table 9.1). By far the most valuable commodity was salt to be brought as ballast. This he intended to sell to the fishermen at Placentia, as he had done two years earlier. Next in value was alcohol. Three tuns of wine were reserved for trade, but an additional four tuns were needed just to feed his crew for the eight month voyage and pay them to unload the vessel. More valuable still was *aqua vitae*. Together, salt, fishing line and alcoholic beverages account for more than 61% of the value of his stock in trade. But in spite of their cost, these bulk supplies were just a few of the items on his order. The remaining goods, which comprised fully 80% of the listings, were nearly all personal items for the European settlers—clothing, textiles, combs, firearms and playing cards.

These materials have remarkably close parallels in Pentagoet's archaeological deposits (Table 9.2). Where Brunet lists clothing, the excavations record buttons and other fastenings. For textiles the archaeological record preserves the lead seals which identified them. Even the pins and needles and other tailoring tools are represented at the site. The archaeological remains not only give substance to Brunet's account but also include many items which were not in his inventory or which he considered to be "little utensils of which it is not necessary to note."[1]

Costume: Dressing the Part

At Pentagoet, as at most other land sites in New England, preservation of organic materials is comparatively poor. Consequently the direct evidence for costume is largely restricted to inorganic fastenings and accessories. In rare situations, small patches of organic material have survived where they have come in contact with copper and have been preserved by the salts or have been kept consistently dry in pockets beneath the slate rubble. In all, some 23 artifacts associated with dress survive from Pentagoet I and Pentagoet III. Most of these items were recovered from within buildings and around the Barracks (2.2-2.3) and D'Aulnay's House (7). Personal belongings were also found amid the wreckage of a chest which apparently fell from the upper chamber of the Dwelling into the damp cellar below as the building was being destroyed.[2]

Symbolic Dress of the Cavalier

While it is risky to infer privilege from artifacts, the rules of dress in 17th-century France were sufficiently well defined to permit us to associate high status with many of the accessories recovered. Several of the Pentagoet I artifacts represent the costume of the cavalier. These elitist articles are not so much indicative of military rank as they are of birthright; in effect they are the symbols of nobility. All of the commanders of Pentagoet, d'Aulnay, Grandfontaine, and Chambly were addressed as *Chevalier*, a sure indication of

TABLE 9.1
Merchandise Requsition of Henri Brunet, 1675

Description	Quantity	Value
Clothing and accessories		
linen shirts from Morlaix	300	220.0
town style caps	60	70.0
black taffeta sailors' cravats		60.0
taffeta cravats [fancy?]	50	125.0
hats from Caudebec, large size	24	48.0
shoes from Poitou	30 prs	67.5
thread laces		12.0
colored ribbons from St Estienne		250.0
galloons [braid], white thread		12.0
galloons, silk ,black, white, & red		12.0
buttons 1/3 silk, 2/3 thread for jerkins: gray, brown & white for camisoles: red	(many gross)	60.0
dress for a girl	1	60.0
Textiles		
linen from Morlaix	200 [pcs?]	150.0
linen, white, from Lyons	60 [pcs]	36.0
drugget [artificial silk]	6 pcs	72.0
Tailoring supplies		
silk [thread?]	1 livre	14.0
thread from Rennes	20 livres	22.0
pins	120 [pkgs?]	40.0
needles		10.0
large shears from Fouras	24	6.0
Grooming		
horn and wood combs, new		30.0
razors from Fouras	24	12.0
Entertainment		
cards [playing]	144 [packs?]	15.0
Foodstuffs		
Preservation and storage		
salt [for fish]	60 tuns	1500.0
small barrels for salt beef	200 quartauts	400.0
Beverage		
aqua vitae in small barrels	20 quartauts	1550.0
claret	2 tuns	133.0
white wine	1 tun	67.0
Miscellaneous		
guns from Fouras	6	60.0
gunlocks from Fouras	24	72.0
line [rope]	300 livres	130.0
Total value of merchandise		4315.5

TABLE 9.2
Personal Belongings Excavated at Pentagoet

Description	Phase	Provenience	Count
Clothing and accessories			
badge, cast copper	PI	2.2	1
belt hook, iron	P I	E. Curtain midden	1
braid, gold	P I	E. Curtain midden	1
braided belting	P I	E. Curtain midden	1
buckle, 8-form, copper	P III	2.3	2
buckle, 8-form, iron	P I?	paving s. of 7	2
buckle, spur, iron	P I?	paving w. of 7	1
buckle tang, iron	P III	2.2	1
button, cast iron	Penobscot	2.3	1
button, cloth & copper	P I?	rampart stairway	1
button, silver	P III?	gateway	1
clasp hook, cast brass	P I	under E. Curtain	1
épée blade tip, steel	P I?	rampart stairway	1
fastener, copper wire	P I	E. Curtain midden	1
garment, hide & fur	P III	1.1	1
garment, plain knit	P III	1.1	1
garment, wool[?], red	P I	E. Curtain midden	1
ribbon 4/1 satin weave	P III	2.3	1
ring, sq. mount, brass	P I	rampart stairway	1
ring? gadrooned	P I	rampart stairway	1
scabbard tip, iron	P III	2.3	1
Textiles			
cloth seals, linen and worsted	P I, PIII	1.1, 1.2, 2.3 gateway	5
Tailoring supplies			
horn tip (button mfr)	P I	2.2	1
pins, brass	P I, P III, Penobscot	2.2, 2.3, middens, rampart stairway	33
needles, steel	P I, P III	2.2, 2.3 E. Curtain midden	4
scissors handle, steel	P III	paving n. of 2.3	1
thimble, pewter, & frog	P III	2.3	1
Grooming			
combs, horn, H-pattern	P I?, P III	1.1, 2.2, and under floor of 2.1	3
Entertainment			
gaming counters, delft	P III	1.1, Trash outside Barracks	2
Coins			
double tournois, France	P I, P III	1.2, under rubble of E. Curtain	2
copper dam, India	P III	2.2	1

their status.[3] While the term *Chevalier* had lost its original meaning of cavalryman or knight, the ranks of commissioned officers were still reserved for nobility. In both civilian and military contexts these were the *gens d'épée*, and it is from their swords and related paraphernalia that we can recognize their presence.[4]

Fragments of at least one *porte-épée*, or sword holder, are represented in the Pentagoet I midden associated with D'Aulnay's House (7). This device was used as a sling to support the long, French épée at an angle, alongside and

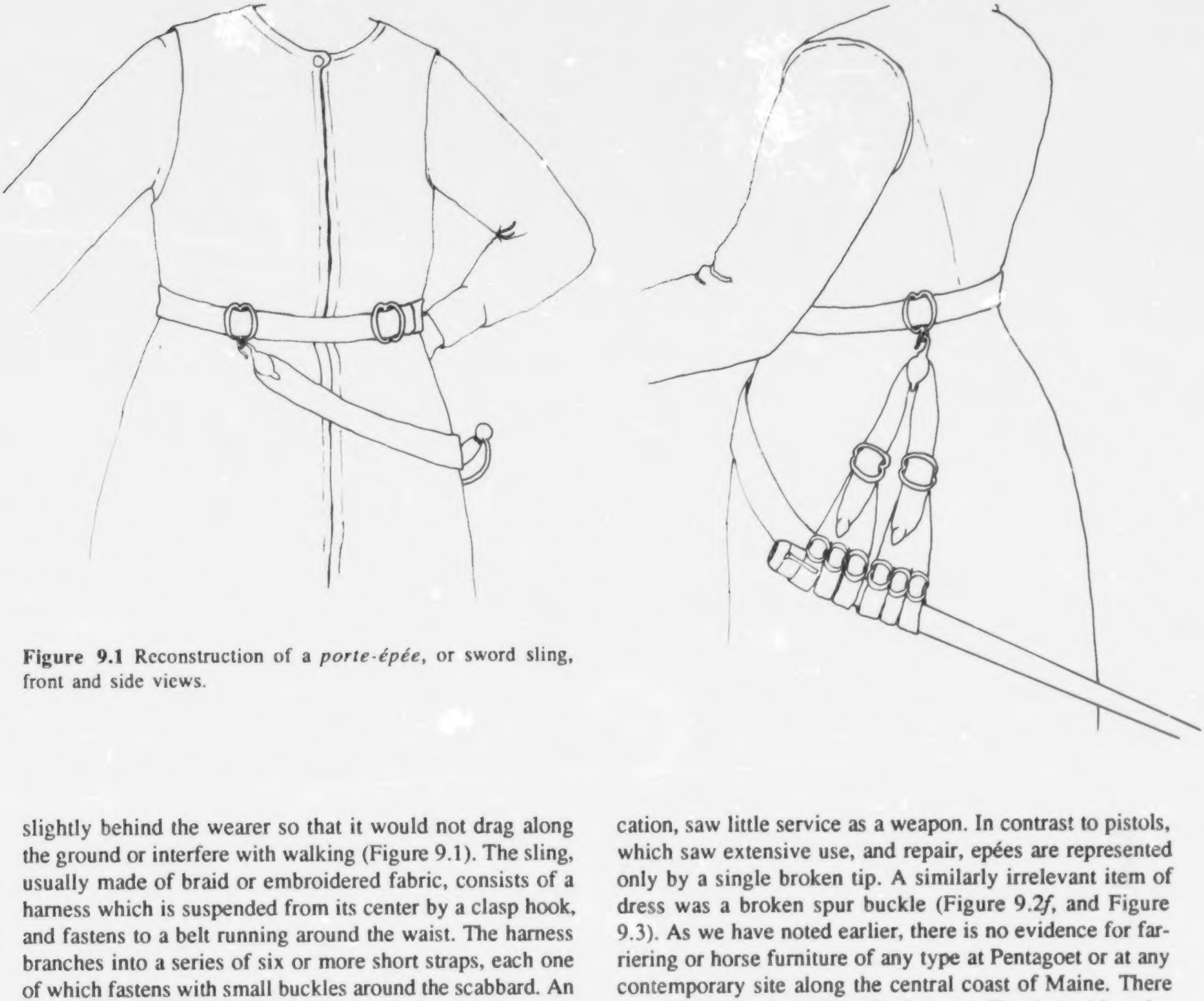


Figure 9.1 Reconstruction of a *porte-épée*, or sword sling, front and side views.

slightly behind the wearer so that it would not drag along the ground or interfere with walking (Figure 9.1). The sling, usually made of braid or embroidered fabric, consists of a harness which is suspended from its center by a clasp hook, and fastens to a belt running around the waist. The harness branches into a series of six or more short straps, each one of which fastens with small buckles around the scabbard. An additional strap extends from the *porte-épée* and hooks onto the front of the belt with another clasp to stabilize the arrangement. Parts of the sling have been identified at Pentagoet, including two small figure eight-shaped iron buckles, which are thought to have fastened the tabs at the end of each harness, the clasp hook which suspended the sling from the belt, and some intricately woven belting interpreted as part of the harness itself (Figure 9.2*a–c*, Figure 9.4*d*).[5] In addition, two larger buckles of brass from the Pentagoet III Barracks (2.3) probably belong to later sword belts or "baldrics" (Figure 9.2*d–e*).

Other than as a symbol of authority, the épée seems to have been an irrelevant accoutrement—an item of dress which, if the refuse of the Pentagoet I workshop is any indication, saw little service as a weapon. In contrast to pistols, which saw extensive use, and repair, epées are represented only by a single broken tip. A similarly irrelevant item of dress was a broken spur buckle (Figure 9.2*f*, and Figure 9.3). As we have noted earlier, there is no evidence for farriering or horse furniture of any type at Pentagoet or at any contemporary site along the central coast of Maine. There simply was no opportunity for horse traffic along this reticular coastline. Yet at Pentagoet, as at contemporary sites, figures in authority dressed as horsemen.[6] In retrospect, however, this practice is no more incongruous on the frontier than in a European ballroom where 17th-century cavaliers also wore spurs and swords.[7] Regardless of the setting, it was a formality of dress which could not be overlooked.

The brass badge bearing d'Aulnay's crest is clear evidence of his personal authority and may have been attached to a hat (Figure 9.2*g*). Although the initial blank was formed in a mold, it was carefully engraved by hand thereafter, and surely was not mass produced. Probably only a few were made, and they may have been distributed to selected employees or representatives. The handsome emblem

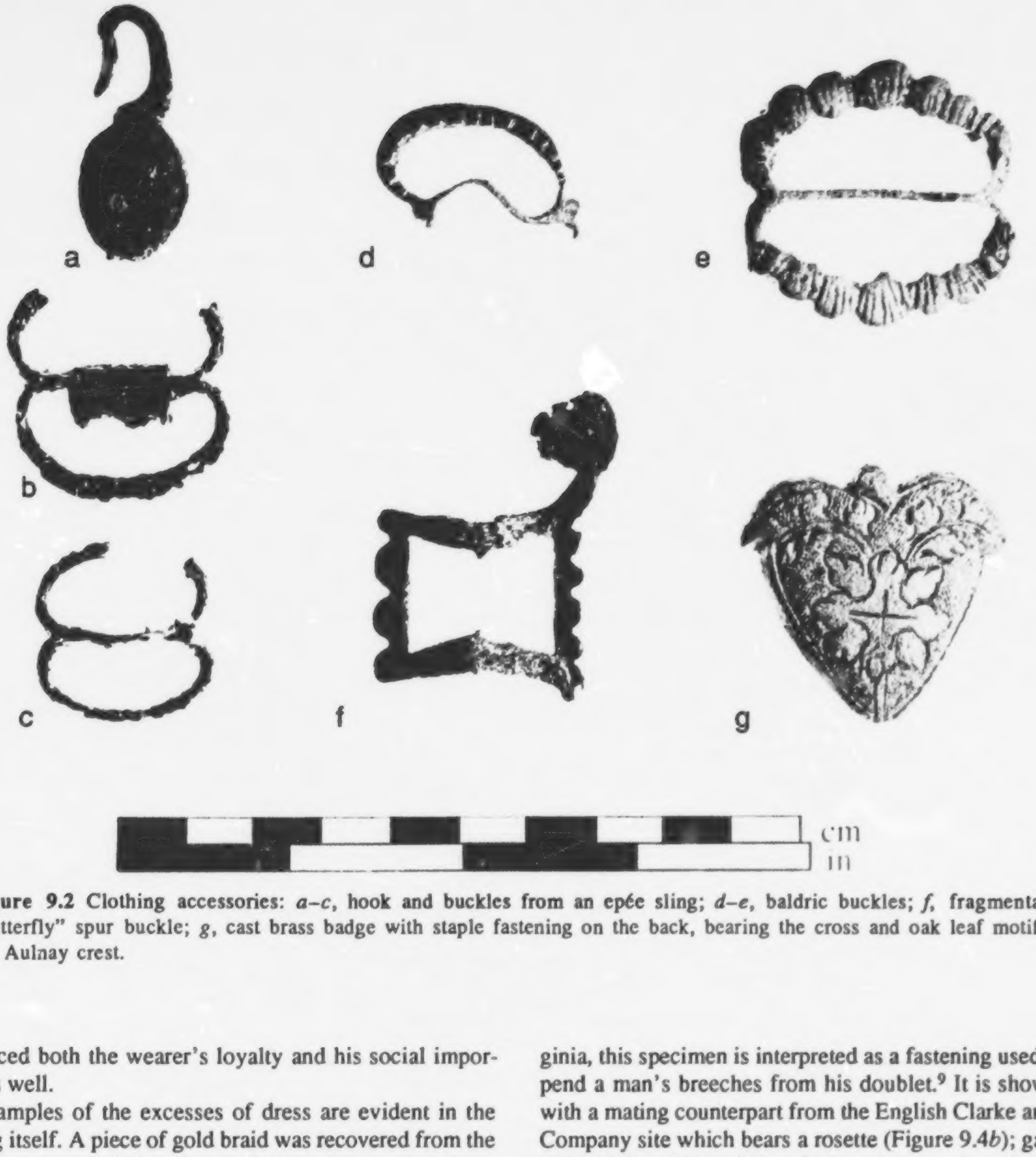


Figure 9.2 Clothing accessories: *a–c*, hook and buckles from an epée sling; *d–e*, baldric buckles; *f*, fragmentary "butterfly" spur buckle; *g*, cast brass badge with staple fastening on the back, bearing the cross and oak leaf motif of the Aulnay crest.

announced both the wearer's loyalty and his social importance as well.

Examples of the excesses of dress are evident in the clothing itself. A piece of gold braid was recovered from the d'Aulnay House midden (Figure 9.4*c*), a more elegant version of the "galloons of white thread" requisitioned by Brunet. Gold galloons, like swords and spurs, were clearly symbols of high position. In Virginia, the wearing of gold thread in one's clothing was reserved by law for the governor, his council, and the heads of hundreds, and at Pentagoet similar restrictions may well have applied.[8] The D'Aulnay House midden also produced a cast brass clothing hook, embossed with a *fleur-de-lis* (Figure 9.4*a*). The motif on the hook was surely meant to be oriented vertically, and by analogy to wire clothing hooks from Martin's Hundred in Virginia, this specimen is interpreted as a fastening used to suspend a man's breeches from his doublet.[9] It is shown here with a mating counterpart from the English Clarke and Lake Company site which bears a rosette (Figure 9.4*b*); garments of English and French frontiersmen seem to have been similar in design and surprisingly formal.

Nobles on the frontier dressed in attire which seems foppish and thoroughly incongruous from a modern perspective. Yet it was their obligation to avoid derogation at all costs. To dress in the simple garb of a commoner, without the proper status symbols, would be to act beneath one's station in life, a totally unacceptable behavior which could lead to the forfeiture of one's birthright.[10] One of the fixed costs of living, even for the many minor and impecunious nobles of rural France, was the maintenance of one's image.

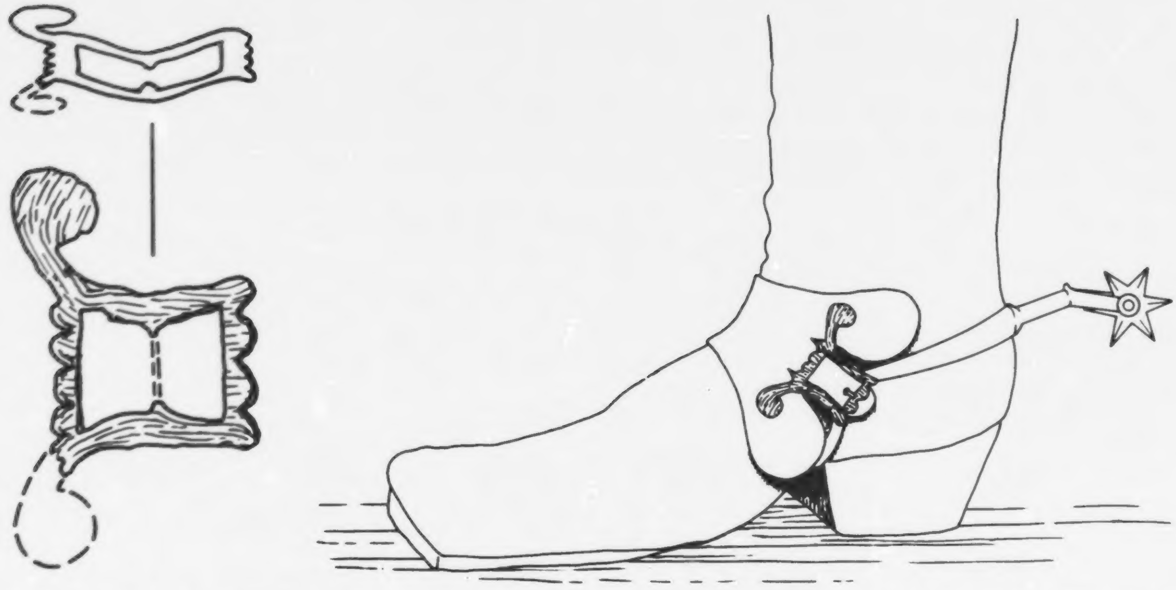


Figure 9.3 Spur buckle (*left*), and detail of the connection between the metal spur assembly and the leather "butterfly" strap which passes over the cavalier's instep (*right*).

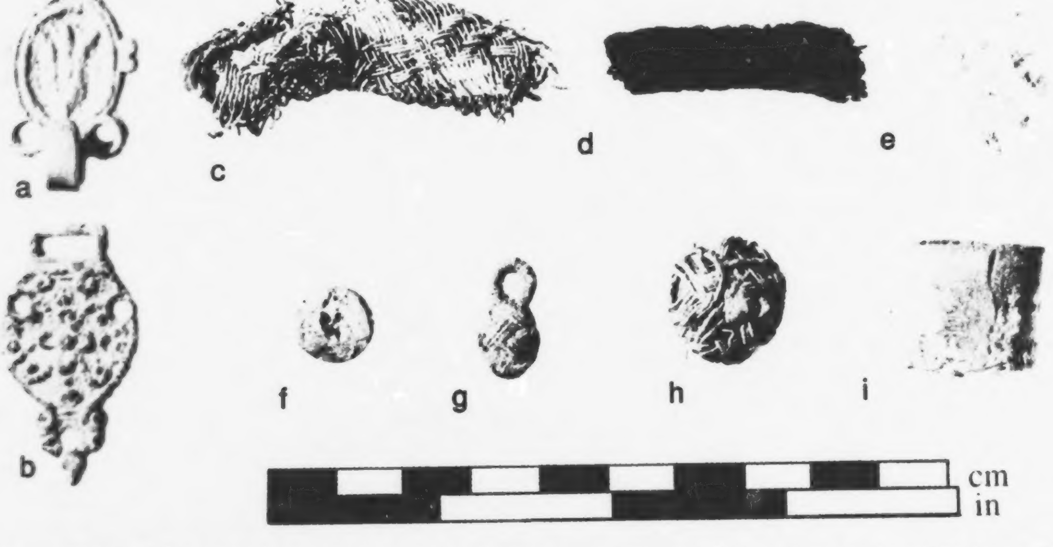


Figure 9.4 Clothing fastenings and fabric: *a–b*, clothing hook embossed with a *fleur-de-lis* motif, shown with a rose embossed counterpart from the English Clarke and Lake Company site; *c*, gold "galloon" or braid; *d*, braided belting, probably from an epée sling; *e*, satin weave ribbon fragment; *f*, hemispherical silver button (back); *g*, braided "frog" or small button; *h–i*, braided button and the pewter thimble in which it was found.

Such costs also were born by merchants like Brunet, who wanted to look his best both in Boston and in Acadia, and wrote to his sister to arrange the purchase of

> a black beaver hat with a rather fine black plume and a wig.... Its not at all necessary that it be long, but specially well made and of beautiful, life-like hair.[11]

Having second thoughts after this initial request, Brunet decided for a whole new wardrobe. His request included six yards of poppy-red ribbons, two Dutch linen cuffs, three pairs of canions [upper hose], a half dozen fine handkerchiefs with tassels, a pair of silk stockings to match his other clothes, some silk needlepoint fringes of variegated brown, two fustian bonnets with lace below, and two camisoles of fustian or cotton damask. But his attitude to frontier dress is best revealed in his order for new doublets:

> "Two jackets, one of brocade, the other of floral cloth or watered mohair [moire]. It doesn't matter whether this material is in fashion—they don't care if it is in these parts—but the whole has to be proper and well garnished with lace: one gold and the other silver—it matters not whether it be sham or genuine."[12]

Apparently it was not necessarily to keep up with the latest fashion or purchase the most expensive goods, so long as one kept up proper appearances. Yet there was truly a method to Brunet's choice of dress, as he clearly intended to sell fancy goods in the Americas which were out of fashion in Europe, and which he could purchase at a discount.[13]

Common Dress

The absence of breast plates, tassettes, and plates from brigandines, which often have come to light in other 17th-century sites, suggests that Pentagoet's soldiers dressed in the loose clothing typical of the musketeer rather than in the armor of the pikeman.[14] The dress of servants, employees, and artisans was probably simpler still, and the 300 loose fitting pull-over shirts or "Chemisse" on Brunet's list were meant for such general use. The archaeological evidence for common attire is inherently limited, and may be represented at Pentagoet only by a few fastenings and isolated scraps of cloth.

Buttons recovered at Pentagoet consist of just one silver and two cloth specimens. The small, hemispherical silver specimen (Figure 9.4*f*) was cast about a wire loop for attachment to a fancy doublet or some similar outer garment, and was apparently lost in the gateway when the wire broke. The remaining two cloth buttons are more typical of the general dress of the garrison. Brunet intended to stock them by the gross—expensive silk ones for doublets, and thread ones for common jerkins. Spaced no more than a centimeter or two apart down the front, a dozen and a half or so were required for each garment.[15] A small button or "frog" recovered from beneath the ramparts stairway, was of the common thread variety, braided about a copper wire loop (Figure 9.4*g*). Frogs passed through small loops of braided cord protruding from the opposite side of the garment. A larger button from the Barracks, braided about a wooden core, was probably fastened through a conventional buttonhole (Figure 9.4*h*). While buttons were apparently recycled and sold second hand, Brunet specified new ones in his stock, allowing, perhaps, for the rough service they would be likely to see in Acadia.

Three scraps of cloth recovered at the site suggest the variation in color, material, and manufacturing technique of common European textiles in use at the fort (Plate 22). A fine, plain weave woolen fabric from the D'Aulnay House midden was originally dyed a bright red or crimson. A piece of knitted wear, a patch of fur, a glass bead, and fragments of a horn comb were found in association with the chest remains from the cellar of the Dwelling. The clothes and the bead were compressed together and organic matter was preserved by the sacrificial corrosion of some unidentified copper item. The fur appears to have been an ox or moose hide garment, while the white textile was a fine, plain knit item of undetermined material. Finally, a strip of fine, satin weave fabric from the Barracks (2.3), its color bleached beyond recognition, was surely a ribbon (Figure 9.4*e*).

Brunet expected to do more business in colored ribbons than in any other single item of clothing. Ribbons must have been among the few decorative items which all men on the frontier used, not principally for their hair, but as decorations about the knees and waist. Like laces or points, they were used in formal dress to tie stockings to "canions" or upper hose and fasten breeches at the waist. But this function became secondary to their decorative value.[16] A Frenchman participating in a raid during "King Philip's War," the Etchemin uprising of 1676, was identified partially because he was dressed with "blue, black and yellow ribbons on his knees."[17] Thomas Breedon, the Boston trader who managed Sir Thomas Temple's holdings during Pentagoet II, observed this fashion in the extreme, and the reaction of the Puritans is predictable:

> He appeared in Boston in a strange habit with a four cornered Cap instead of a hat, and his Breeches hung with Ribbons from the Wast down^{w} a gr^{t} depth, one row over another like shingles on a house: The Boyes when he came made an outcry, from one end of the streete to the other calling him a Devill, which was so great, that people wondering came out of there houses to see whatt the matter was.[18]

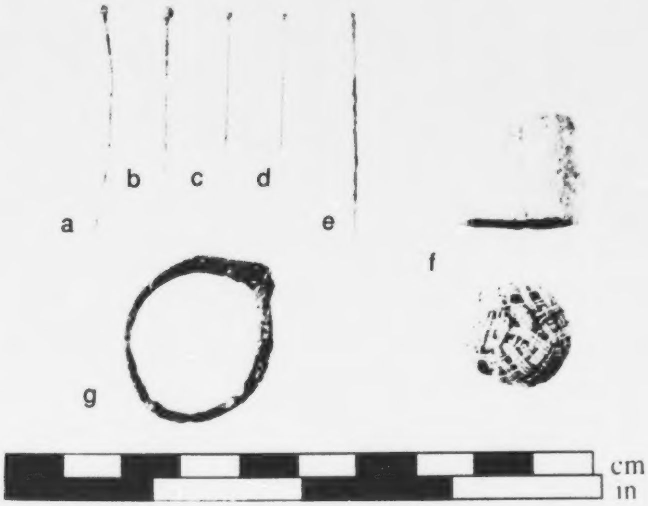


Figure 9.5 Sewing equipment: *a–d*, brass pins; *e*, steel needle, *f*, pewter thimble and spare braided button found within it; *g*, scissors handle.

Tailoring

Scattered among the occupation refuse, particularly in the area of the Barracks, is evidence for the manufacture and maintenance of these furnishings—the remains of tailoring. Brass common pins with soldered, wire-wound heads, occur in two sizes in the barracks and surrounding middens. Also present are a few steel needles, a handle from a pair of scissors, and a pewter thimble (Figure 9.5).

Although sewing equipment is common on later military sites, it is difficult to imagine a tailor at a small frontier establishment like Pentagoet. The thimble, for example, was found stuffed with a braided button, and appears to be an emergency sewing kit rather than a tailor's professional equipment. Yet there is considerable evidence that stitchwork went beyond makeshift repairs, and it is likely that at least one member of the garrison was skilled in the rudiments of tailoring. Pins, after all, imply fabrication of clothing, and not simple mending of rips and tears, and reattachment of buttons. Brunet's proposed cargo reads like a floating fabric and notions emporium, geared to supply the yard goods, buttons, galloons and laces required for clothing together with the shears, pins, needles, and silk and common thread needed for tailoring. Indeed, with the exception of shirts, shoes and hats, Brunet's merchandise is predictably lacking in ready-made clothing.

The principal evidence for tailoring at Pentagoet comes from lead cloth seals which were attached in the country of origin to bundles of cloth, certifying their quality and quantity. Attachment of these cloth seals was generally the responsibility of the office of "alnager," a lucrative position which, in Britain, was appointed by the crown. The alnager was responsible for enforcing the current assize governing cloth manufacture, and his employees were empowered to collect a fee, or "alnage" for each inspection. The seals generally bore some form of identification impressed on the face and additional data pertinent to the inspection incised or stamped on the back. While some cloth seals are multiple, all but one at Pentagoet are of the simplest form, comprised of two connected lobes—a rove or washer and a rivet—which were folded over the edge of the cloth and crimped together to make a single, disc-like tag.

Cloth seals are to be expected on frontier trading sites as by-products of commerce, but the specimens at Pentagoet apparently do not represent Indian trade goods. Four of five such seals occur in the principal living quarters—the Barracks and the Dwelling—and all show evidence of having been pried from the fabric to which they were once affixed. Surely these pieces of cloth were used at the fort itself.

Two of the lead seals from Pentagoet bear recognizable markings. One is Dutch, and was found in the Pentagoet III Barracks near the other tailoring refuse (Figure 9.6*a*). The obverse of this seal bears the arms of the city of Haarlem—a shield with a sword pointing upward, two stars on each side, and a Maltese cross above. Surrounding the shield is the partially legible inscription "HAERLEM." Similar seals have been found in a number of sites in England and the Netherlands, and are thought to have been attached to damask, a linen fabric which was Haarlem's most common export. Damask of this period was about 45 cm to 63 cm wide. The quantity is indicated on the reverse within a beaded circle: "19 1/2" Dutch ells, or about 13.25 m of material.[19] While Brunet's list mentions only linen from Morlaix and Lyons, the supply he brought with him on his 1673 voyage included Dutch linens as well. Along with an occasional "piesse de

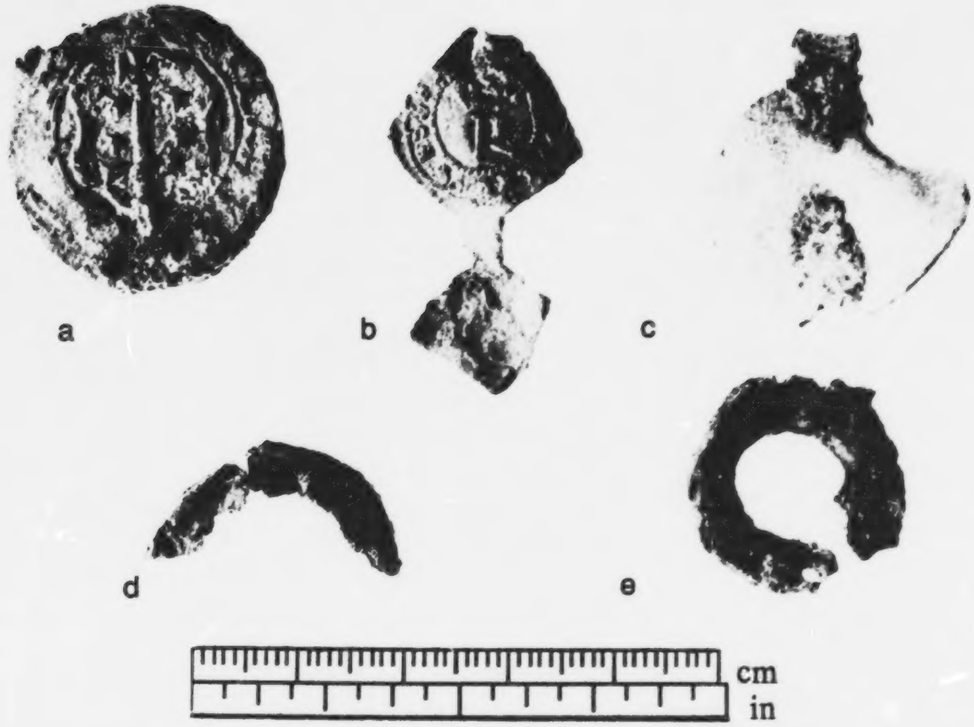


Figure 9.6 Lead cloth seals: *a*, Dutch seal marked with the arms of "HAERLEM," stamped "19 1/2' on the reverse within a beaded ring, and believed to have tagged about 13.25 m of Dutch linen or damask; *b*, English seal, probably once attached to woolen goods, marked "COUNTY OF ESSEX" and bearing an R coronet, symbol of the Duke of Richmond, the royal alnager; *c*, plain lobe from multiple seal; *d–e*, fragments of the rove side of a seal.

toille blanche" from Lyons, he frequently made gifts of a "piesse dollonne"—a piece of Holland cloth—to his business associates.[20]

The second seal was English, and was found at the entrance to the fort. This specimen bears an "R" for "Richmond" surmounted by a coronet and surrounded by the inscription "COUNTY OF ESSEX" (Figure 9.6*b*). From 1605, except for the Cromwellian period of parliamentary rule, alnage rights were held by the Duke of Lennox and Richmond. The specimen in question appears to date after the privilege was restored in 1664, and therefore probably can be attributed to Pentagoet III. In view of the origin of the seal in Essex, it is likely that it was attached to a length of English worsted. Alternatively, however, it may represent knitted woolen stockings, the only finished goods to which such seals were attached.[21]

Dutch linen and English worsted destined for Pentagoet apparently travelled along well-established routes, and may have passed through Amsterdam and London, the central clearing houses for most textiles in Europe during the 17th century.[22] Thereafter textiles probably followed the same pattern of indirect trade suggested for many other goods at the site, the Dutch materials coming through the port of La Rochelle via merchants such as Brunet, and the English goods arriving via New England merchants. But many of the textiles—silks and muslins from the East India trade, as well as linen from Morlaix and Lyons—bypassed these checkpoints, and may well have arrived at Pentagoet without lead seals to identify them.

Storage Chests

Although many personal effects appear to have been lost between floorboards or discarded on the trash heaps, some belongings, such as the comb, bead, and clothing from the cellar of the Dwelling, have been recovered with the remains of the wooden chests in which they were stored. At least seven chests are represented, identifiable as clusters of hinges, hand forged nails and occasional hasp lock fragments

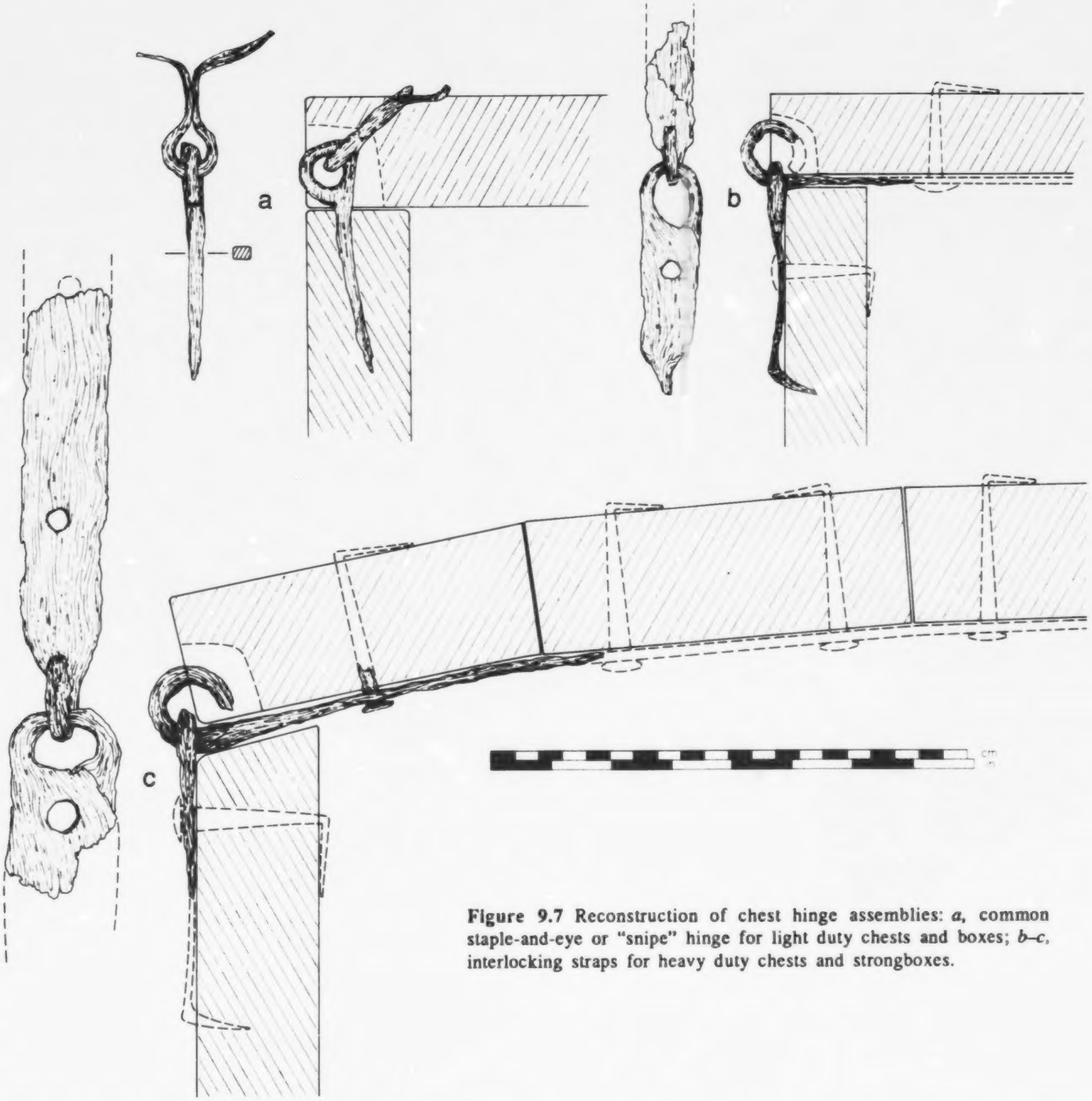


Figure 9.7 Reconstruction of chest hinge assemblies: *a*, common staple-and-eye or "snipe" hinge for light duty chests and boxes; *b–c*, interlocking straps for heavy duty chests and strongboxes.

(Figures 9.7 and 9.8). All of the chests from within buildings are accompanied by tell-tale patches of charcoal on the floors and appear to have been destroyed in place before they could be salvaged during the assault of 1674.

The most common form of trunk hinge was the simple staple-and-eye variety, sometimes called a snipe hinge (Figure 9.7*a*). This was a design suitable for light duty chests of all sizes, including the men's personal footlockers.[23] Seven of these hinges were recovered at the site, representing at least four chests. Each hinge consists of two parts: a single eye, which was driven into the back of the trunk, and a staple which apparently passed obliquely through top of the chest where it was clinched to the upper surface of the lid. The eye is made of flat stock which has been cut to the shape of a snipe's head and bill and punched through to form the hole; the staple is formed from narrow, rod stock. This curious design has one drawback, for if an article of clothing or some other obstruction falls in the crack

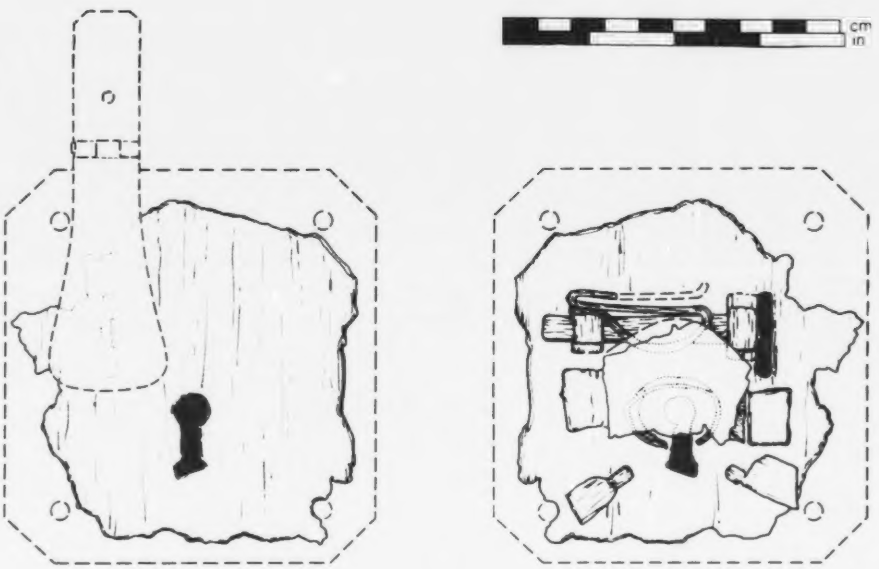


Figure 9.8 Hasp lock for a chest, found just outside the gate of the Fort where it was apparently taken to be rifled: exterior and interior views.

between the back of the trunk and the lid causing the hinge to bind, the eye or "snipe" can be pulled out when the lid is closed. Such hinges are not unique to Pentagoet and may be a French design, as they occur in French contexts in the collections from Fort Michilimackinac.[24] An alternative design, commonly found on Anglo-American chests made from the 17th century through the middle of the 19th century, uses two interlocking staples, clinched obliquely through both the lid and the trunk back.[25] Though inherently stronger, this arrangement can tear apart the wood itself in the event the lid binds. A single example of this type was recovered from the cellar of the Dwelling.

Some of the the larger chests and strongboxes at Pentagoet, which may have held valuables and company supplies, used a system which was both more secure and less susceptible to accidental damage: the strap-and-eye hinge (Figure 9.7*b–c*). The hinge articulates in much the same way as does the simpler snipe hinge, but the interlocking eyes are attached to a pair of straps which are fastened to the chest with clinched nails.[26] The longer of the two straps was apparently attached to the inside of the lid, and served to bind it together just as a long strap hinge holds together a batten door. The shorter strap must have been fastened to the back of the chest with a single clinched nail and a prong at the end of the strap which kept the fastening from twisting. At least three strap-and-eye hinges, representing two trunks, have been found in the main quarters of the Dwelling (1.2) and the Barracks (2.2-2.3); two strap fragments which may represent similar hinges were found in the refuse behind D'Aulnay's House (7).

At least three of the chests were fitted with hasp locks, similar in operation to the locking latches used on attaché cases today. Two of these sheet metal locks, too badly corroded to reconstruct, were found in the Dwelling (1.1 and 1.2) where they may have secured the Governor's possessions. The third hasp lock, in much better condition, was found just outside the gate, and probably represents a chest which was dragged there to be rifled just before the fort's demolition (Figure 9.8). In form, this lock is very similar to those in use a generation later at Fort Michilimackinac.[27]

Other Necessities of Life

Except for tobacco pipes, case bottles, and clothing fastenings, the archaeological collection of personal effects is quite sparse. The impoverished assemblage probably reflects reality. Other than clothing and alcoholic beverages, traders like Brunet had little to offer the habitants for personal comfort. For grooming, he carried steel razors, and bone and horn combs.[28] For health care he apparently kept some bottles of "Madame George's ointment."[29] For entertainment there were decks of playing cards. Perhaps the guns listed could be considered in the latter category as well, for, from the worn out pistols and bullet-ridden utensils, it seems that firearms were used as much for revelry as for hunting, defense or sport. All in all, the comforts and pastimes at Pentagoet must have been few and simple. The fort's company appear to have been best prepared to amuse themselves by smoking and gambling and drinking hard when liquor was available.

Gaming Tokens

Two discs, carefully abraded into shape from decorated Delft potsherds, were recovered in Pentagoet III contexts: the smaller from the cellar stairway of the Dwelling, and the larger found in deposits immediately outside the Barracks (Plate 16, middle row left). Both examples seem to match plates which were originally discarded in Pentagoet I; apparently the sherds were picked up later and recycled.

The recycling of sherds of decorated Deft plates into gaming tokens, like the recycling of scrap from copper kettles, is often taken by archaeologists and historians as *prima facie* evidence of "native" manufacture. But simply-made potsherd tokens are well known on post-medieval sites in Europe, where they range from the size of a dime to nearly as large as a silver dollar. Delftware counters very similar to the Pentagoet examples, although somewhat more irregular in outline, have been unearthed at Aldgate in London.[30] They also appear in French and English colonies as well as in 17th-century Dutch settlements in Albany, New York.[31]

Certain contemporary Indian groups did indeed reuse delftware sherds in this same fashion, producing items which may have functioned variously as gaming pieces and ornaments; Susquehannock sites in Pennsylvania and Iroquois sites in New York have yielded specimens which are virtually indistinguishable from their European counterparts, as well as some varieties which are perforated to serve as beads or pendants.[32] It has become fashionable—even trite—to "explain" such items as evidence for the rational way in which Indian groups adopt and reinterpret European materials to conform to their own world view.[33] While it is entirely possible that these European objects made different sense both practically and metaphorically to Indians, the primitive technologies associated with recycling should not be construed as evidence of the transformation of a European object into an Indian one. Primitive technologies are not restricted to non-Europeans. Certainly these discs have parallels in Pre-Contact aboriginal stone ornaments, and their manufacture seems to fit right in with Indian ornament-making techniques. But the fabrication of a delftware disc imitates a crude, but well-established, product derived from urban settings in Europe. It is the cognitive transformation from token to ornament, rather than the technology of manufacture, which determines whether the item is Indian or European.

There is little doubt that the discs at Pentagoet were fashioned by the French primarily for gambling or gaming and were the non-perishable counterparts of the playing cards on Brunet's order. Usually the pieces were made from sherds carefully selected from the flattest, most uniform portion of a delft vessel—the center of a plate or bowl—resulting in a piece that has both a decorative "heads" and a plain, often unglazed "tails." The piece could be flipped as a coin, or be used on a simple board game such "tric trac," illustrated in a painting by the Le Nain brothers.[34] A more serious use for such pieces may have been as makeshift *jetons*, or counters, used in conjunction with a board for calculating accounts.[35]

Coinage: Petty Cash

Coinage was in short supply in 17th-century Europe, leading to an economy which was based largely on credit, a situation which must have obtained in the extreme in Acadia and New France.[36] Just three coins come from Fort Pentagoet, all of copper and of low denominations. They occur not in access ways or in the courtyard where active negotiations with outsiders might be expected to have taken place, but rather within the residences. Here they were either lost or abandoned together with other personal effects.

Two of the three coins were common *double tournois* pieces minted during the reign of Louis XIII (1610–1643). The "*double*" was the equivalent of two *deniers* in the standard system of coinage established at Tours. Worth 1/120th of a livre, the coin was the counterpart of tuppence in the English system. One very badly corroded specimen (Figure 9.9*a*) was found on the graded fill on which the Dwelling was erected, at the presumed location of a wooden staircase which led from the main room to the chamber over the cellar. The coin could have been dropped during the construction of the building or may have fallen through the cracks in the wooden staircase during Pentagoet I or Pentagoet III. Although the date is illegible, the circumscribing rings on both sides of the coin identify it as an early version which originally showed a right-facing bust of a young Louis XIII.[37] A second *double tournois*, in much better condition, was recovered on a Pentagoet III surface, sealed beneath toppled rubble from the East Curtain (Figure 9.9*b*).[38] This specimen bears a more aged likeness of the king, and is dated "1642."

The third specimen is a truly intriguing find—a heavy Islamic coin of copper, fully 6 mm thick, on which is stamped a Persian inscription (Figure 9.9*c*). This *dam*, as it was called, came from Surat, India and bears the name of Aurangzeb (1658–1707), last of the Mogul shahs; details of the inscription indicate that it was minted before 1672.[39] It was recovered in the middle of the Barracks (2.2) on the Pentagoet III floor, where it was left when the fort was destroyed. The presence of this coin serves as a reminder that during the military governorship of Pentagoet III the fort was part of a much greater French colonial empire envisioned by Louis XIV and his minister, Colbert. Following

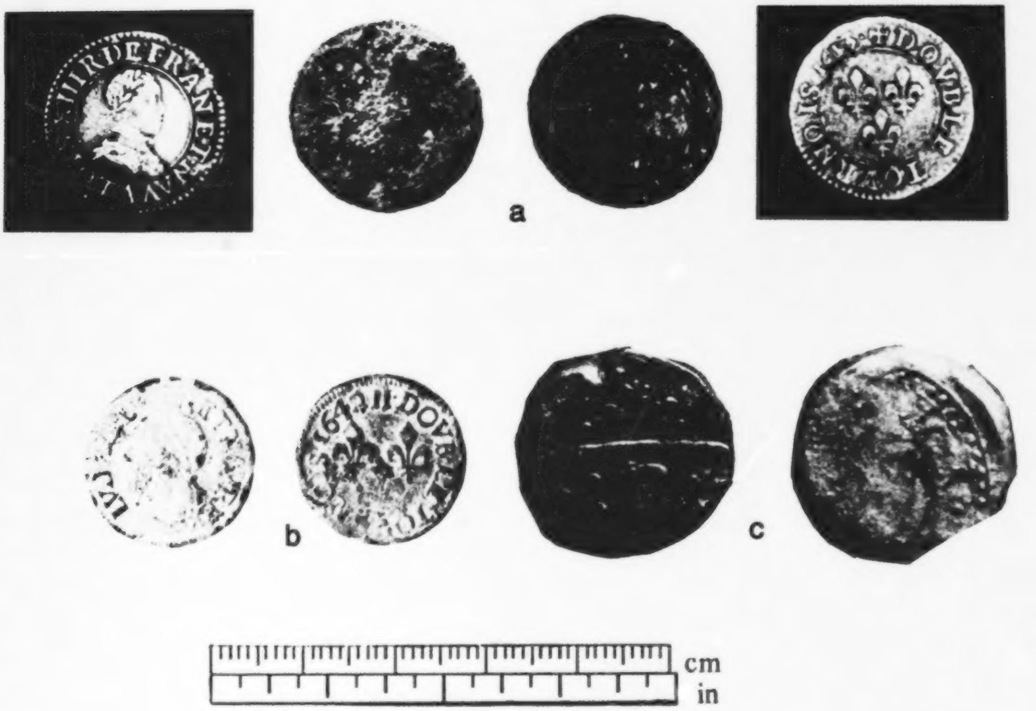


Figure 9.9 Copper coins from France and India. The French coins, *a* and *b* are *doubles tournois* minted during the reign of Louis XIII (1610–1643). The earliest, *a*, is identifiable by the encircling ring on the reverse, and is shown with a photograph of a similar coin from a comparative collection. The second, *b*, is of a later style, showing the left-facing bust of an aging Louis XIII with no ring, surrounded by the the inscription "LVD XIII DE FR ET NAV REX," or "Louis XIII, king of France and Navarre." The reverse shows two fleurs-de-lis and bears the date "1642." The Indian coin, *c*, is a *dam*, minted in Surat between 1658 and 1672 during the reign of Shah Aurangzeb, last of the Grand Moguls.

the lead of the English and the Dutch, who had already established colonies in this area, Colbert founded the *Compagnie des Indes Orientales* to promote trade and colonization in India in 1664.

Even though coinage from other European nations circulated among the French, this Indian *dam* was probably of little or no value in European trade. Its owner may have regarded it as little more than a souvenir or may have found its size and unusual thickness suitable as an alternative for the makeshift ceramic gaming tokens. The significance of its presence in the rubble of the Barracks, however, lies in the probability that at least one of the members of the Pentagoet garrison was formerly stationed in India or was in some way involved in the East India trade.[40]

The scarcity of metal currency at Pentagoet is apparently typical of sites of this type. At Fort la Tour, just eight coins of 17th-century date were found. Of these, six were French of Louis XIII and early Louis XIV date: five *double tournois* pieces and a single *un sou* piece. The remaining two were a Swedish copper dollar, 1639, and an illegible coin thought to be an English copper shilling from Bermuda.[41] Similarly, at Champlain's Habitation, the 17th-century coinage consists of 18 pieces, all French and of low denominations—mostly *douzains* and *doubles tournois*.[42]

Certainly this well-worn petty cash does not derive from the profits of business—hard cash acquired from European merchants in exchange for fish and furs.[43] The currency accrued in trade is relatively well represented by coin hordes in Maine. These discoveries generally consist of hundreds of gold and silver coins of mixed of European origin—particularly Spanish, English and French—usually showing relatively little wear. Examples include the coin hordes attributed to Walter Bagnall, an English trader at Richmond's Island (c. 1631), and to Saint-Castin on the Bagaduce River (c. 1690).[44]

On the other hand, these small denomination coins were favored as ornaments by most Indian groups, and appear in significant numbers on Iroquois sites by the third quarter of the 17th century.[45] In that sense, such coins may have figured significantly in the fur trade. None of the Pentagoet specimens are perforated for suspension, however, and evidently they were still in circulation among the garrison. Considering the remote location, it is likely that the coins saw as much use in gaming as in commerce.

Trade Items

While trading with the Indians in Narragansett Bay in 1524, the Florentine navigator Giovanni Verrazano noted that of "those things which we gave them, they prized most highly the bells, azure crystals, and other toys to hang in their ears and about their necks."[46] Nearly a century and a half later, these very same items were the principal indications of the Indian presence at Fort Pentagoet. Exactly who supplied these trade items and where they were manufactured is not clear. They were not among the goods supplied by Brunet during Pentagoet III, although Brunet does mention a certain M^{r} d'Artiaque "who is going to Pentagoet to carry some provisions & trade merchandise to M^{r} Le Chevalier de Grandfontaine."[47] Unfortunately, little is known about this trader, and his accounts have not been found.

Determining the significance of trade items found within the confines of the fort requires careful interpretation of the context in which they were recovered. Pentagoet was managed by d'Aulnay and all his French successors as an island of European life. To the extent that any military outpost can reflect the comforts of home, it was a recreation in the Acadian wilderness of rural life in France. As was true for most frontier outposts of the period, the curtain walls provided both a physical and symbolic barrier isolating this European world from its primitive surroundings. Whatever access Indian visitors may have had to this enclave was limited and strictly regulated. Although this relationship changed dramatically when Pentagoet was succeeded by Saint-Castin's Habitation—a trading post within an Indian village—it was the model by which French controlled the Acadian frontier for the first three quarters of the 17th century.

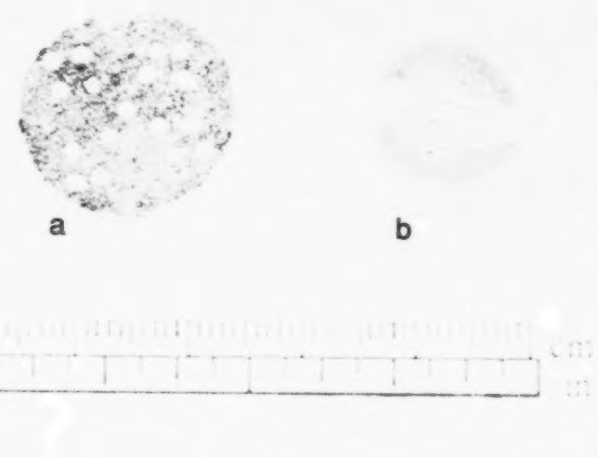
Belongings of the Indians themselves, particularly trade goods manufactured specifically for them, are rare in the Pentagoet collections, but this phenomenon is readily explained by its excavation history. Within this European compound, excavation has been conducted principally in work areas and residences. The Magazine, where the stock in trade presumably was stored, was all but destroyed by amateur excavations in 1892, and no useful record of the materials recovered survives. One would expect, moreover, that little of the trading stock would have escaped the Dutch pirates or subsequent looters. Thus the two principal contexts which might be expected to produce trade items in quantity, Indian occupation and storage of trading stock, are not represented in the existing collections. Furthermore, the few trade items which were manufactured or repaired at the site—axes, firearms, and various products crafted from sheet copper—are, in many cases, indistinguishable from the materials used by the Europeans themselves.

Other than items brought in for repair, and perhaps some metal projectile points which were left imbedded in game sold to the fort's company, the evidence for Indian belongings should be restricted to small items which were lost. Given the closed nature of the French fort, these items should occur principally in areas of access and assembly—the entranceway, and the paved courtyard respectively. Trade items found in other areas, particularly within the living quarters, beg for some other explanation.

A Trade Bell

In the rubble above the Barracks (2.2), was found the hemispherical cover of a small "rumbler" or "trade bell," 14.5 mm in diameter (Figure 9.10*b*).[48] In this design, the opening to the sound chamber is formed by two holes connected with a slit, forming a dumbbell-shaped slot. Originally this cover was soldered or crimped to a mating hemispherical back, like a sleigh bell, and must have contained a small ball of brass or some similar hard material to act as a clap-

Figure 9.10 Probable trade items: *a*, copper alloy disk with cruciform perforations of undetermined function, found in pre-Pentagoet sediments immediately beneath the Smithy floor (2.2); *b*, cap to a "rumbler" or bell originally sewn on a garment found just above Pentagoet's slate rubble.



per.[49] The back was fitted with a central sheet brass loop by which the rumbler could be suspended, sewn to clothing or woven in together with beads in a belt.

Originally rumblers were items of European costume, easily recognized in the dress of the medieval fool, although they may have been used in more "respectable" costume as well.[50] From the time of Columbus, however, bells were traded by the kegfull in America, and apparently were no longer worn by Europeans; in the 17th century they were still common trade items. Some 21 bells occur in the Wampanoag collections from Burr's Hill, and most of them are identical to the Pentagoet example, having two grooves encircling each hemisphere at the bell's "equator." On the basis of their popularity on 17th- and 18th-century sites in the Great Lakes region and in the Lower Mississippi, these bells are thought to indicate French supply.[51]

It appears, therefore, that the Pentagoet specimen was an item specifically manufactured for Indian trade. Its discovery above the rubble from the Barracks, rather than on the occupation floor, suggests that it was deposited after Pentagoet was destroyed. The undamaged cover must have been lost rather than discarded, and apparently popped off the rumbler while the back remained on the clothing to which it was sewn. A plausible explanation is that an Indian lost the bell cover while rummaging through Pentagoet's rubble.

A Dozen Beads

Seventeenth-century sites in the coastal northeast have yielded relatively few glass beads, and those which have been recovered show less variety and complexity than those traded further inland. Generally they occur in assemblages by the tens, rather than by the thousands as commonly occurs in the Great Lakes Region or in the Susquehanna valley of Pennsylvania.[52] During this period beads in New England are plentiful only in a few, rare mortuary contexts, and from all accounts they were insignificant in the European trading stock.[53] Only 23 beads have been recovered at Pentagoet, and of these just 12 can be positively associated with the fort (Table 9.3 and Plate 23). Two others come from ambiguous contexts, while the remaining nine are smaller seed beads found in disturbed Post-Pentagoet strata, and probably represent 18th-century visits to the site.[54] All but one of the beads from Pentagoet phases are of glass, the exception being a supposed rosary bead of wood. The majority of the glass beads are round, blue, and of medium size.

Although admittedly very small, this sample conforms to a pattern recognized for early historic sites in the northeast, an area occupied principally by Indians speaking Algonkian languages. Overwhelmingly, beads of this period from New England, Québec, and the Maritime Provinces are opaque and monochrome, occurring in white, black or in various shades of blue. These are nearly always drawn, rather than wound or molded, and exist either as tubules or as short, tubular sections which have been rounded into spheroids by tumbling.[55] The tubular forms, moreover, are often white, evidently in imitation of the native currency, wampumpeag. The assemblage of beads from Ste. Croix (1604–1605) is typical, as it is comprised of 51 glass beads of which nearly half (24) are tubular white, and half (25) are spheroidal blue.[56] While no glass beads have been described for Fort La Tour, the collection from the early phases of occupation at Champlain's Habitation is comparable to that of Pentagoet both in magnitude and in makeup.[57]

In spite of their relatively low frequency in excavations, it is apparent from written records that in the 16th century and early 17th century the "blue crystals" and related items were highly sought after by most eastern Indian groups. These items were accepted into the symbolic world of the Indians, a world which was unfamiliar to most Europeans, to whom beads were simply cheap baubles. It has been suggested that beads were recognized by the Indians as complements for familiar natural items, and that they were valued for specific "other-worldly" qualities—for their high luster or reflectivity, their resemblance to berries having special curative powers, and their symbolic position in a simple tripartite color system.[58] Whether or not beads were specifically

TABLE 9.3
Beads

Type	Description	Diam.	Location	Count
Pentagoet I–III:				
Glass				
IIa46	round blue	6.5 mm		
			gateway	6
			courtyard	2
IIa13	round white	4.5 mm	Structure 2.3	1
IIb54	red-on-lt. blue striped	9.8 mm	Structure 1.1	1
Ia4	tubular white	4.1 mm	Structure 2.3	1
				11
Wood				
carved round rosary		12.7 mm	n. of Str. 2.3	1
Ambiguous contexts:				
Glass				
IIIa2	red-on-black core	3.3 mm	Structure 2.3	1
Shell				
flat discoidal		10.0 mm	West Curtain	1
				2
Post-Pentagoet contexts:				
Glass				
IIa37	small round blue	3.3 mm	20th cent. fill	8
Bone				
Carved spiral		5.3 mm	20th cent. fill	1
				9
Grand Total				23

accepted as "metaphorical berries," color coded symbols of life, death or "intense experience," or complements to wampumpeag, it is clear that in order to be acceptable, they had to conform to strict limits in color and form.

These cultural restrictions have important implications in the interpretation of the glass bead distribution at Pentagoet. All of the beads from the access and assembly areas—the entranceway and the courtyard—are plain spheroidal, and blue, Type IIa46.[59] Beads in this period were primarily worn as necklaces or woven into belts.[60] Only later, with the introduction of smaller "seed" varieties towards the end of the 17th century, were they used extensively for embroidery, first on moccasins and leggings, and later on upper body garments.[61] A reasonable explanation for the presence of the blue beads in the courtyard is that they were lost from the breakage of belts or necklaces worn by Indian visitors.

Just who wore the remaining three glass bead is not as clear, for they are all different, and were found within the residences. There is no indication that beads played any significant role in European dress of the period, but it appears that that French frontiersmen wore them, perhaps as replacements for lost buttons or "frogs." One bead was recovered lying on a piece of moose or ox hide associated with the chest and contents described earlier from the cellar of the Dwelling (1.1). This was the only bead of complex decoration recovered at the site: a translucent blue spheroidal specimen with red stripes, Type IIa54. The remaining two beads, which are of simple tubular and spheroidal white varieties, were found within the Barracks (2.3). As these specimens are translucent, they too seem to violate the local Indian preference for opaque beads.

This convenient segregation of bead types, which may distinguish those worn by Europeans from those worn by native peoples, is repeated within the contemporary Dutch settlement, Fort Orange (1624–1676) in Albany, New York. There the majority consists of simple rounded types which are found near the entrance to the fort. The smaller, but more varied assemblage of tubular beads occurs on pathways just outside the private dwellings.[62] This explanation is not entirely satisfactory, however, as virtually all of the Pentagoet forms and most of the Fort Orange forms can be recognized in the Wampanoag mortuary goods from Burr's Hill.

Finally, beads found at various sites in the Northeast do exhibit some important differences in technology of manufacture which might be expected to betray their origins. For example, the most common Fort Orange specimens, although they are drawn like those at Pentagoet, are layered of blue or colorless glass over an opaque white core.[63] Attempts to identify specific sources of manufacture in Europe, however, have met with minimal success. The expansion of the Venetian style of glassmaking early in the 17th century provides many candidates for the manufacture of the few types found at Pentagoet. While similar beads have been reported amid the wasters of bead factories in Amsterdam, the Pentagoet specimens could have been produced in several other European glass making centers as well.[64] European manufacturers were apparently able to produce a tremendous variety of beads for separate markets, and the makeup of their wasters are not generally typical of any one regional market in North America. Also, as they shared the same set of technologies, they were capable of duplicating each other's products. As one researcher has observed, "Perhaps we can agree at this point that certain beads reflect French or Dutch or English *trade* but not bead *origins*."[65]

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Notes to Chapter 9: Personal Belongings and Trade Goods

1 "Memoire de Henri Brunet, Boston, le 4e Fevrier, 1675," *Collection Clairambault, PAC*, MG7 I A5, vol. 106, no. 864, p. 67. This and subsequent English translations of Brunet's works are by A. Faulkner.

2 Although the burning of the fort apparently took place on the first of August, the cellar may still have been wet—perhaps full of standing water as it was upon excavation. This would have preserved many of the charred remains which fell into it from the chamber above.

3 The young ensign, Saint-Castin, was a nobleman as well, and eventually inherited the title "Baron."

4 Pierre Goubert, *The Ancien Régime: French Society 1600–1750*, Harper and Row, (New York, 1973), p. 162.

5 Marcel Dugué MacCarthy, *Soldats du Roi, les armées de l'Ancien Régime, 1610–1689*, Musée de l'Armée, Preal, (Arcueil, 1984), pp. 14, 20. Valerie Cumming, *A Visual History of Costume: The Seventeenth Century*, B. T. Batsford Ltd., (London, 1984), Figures 100, 101 and 103.

6 At the English Clarke and Lake Company site, a spur was found but there was no evidence for horses. As we have mentioned before, the two "harness escutcheons" identified there by Baker are probably parts of a powder horn, and a clothing clasp respectively. Emerson W. Baker, *The Clarke and Lake Company, The Historical Archaeology of a Seventeenth-Century Maine Settlement*, Occasional Publications in Maine Archaeology, no. 4, The Maine Historic Preservation Commission, (Augusta, 1985), Plate 19.

7 Abraham Bosse (1602–1676), "Ladies and Cavaliers in a Ball-room," engraving in the collections of the Victoria and Albert Museum, London.

8 Ivor Noel Hume, *Martin's Hundred*, Alfred A. Knopf, (New York, 1982), p. 60.

9 Ibid., p. 85.

10 Pierre Goubert, *The Ancien Régime*, p. 166.

11 "Lettre de Henri Brunet à sa sœur, Boston, le 4e Fevrier, 1675," Collection Clairambault, *PAC*, MG7 I A5, vol. 106, no. 864, pp. 68–69.

12 Ibid.

13 "Letter of Henri Brunet to Mr Bernon, Boston, le 4e Fevrier, 1675," Collection Clairambault, *PAC*, MG7 I A5, vol. 106, no. 864, pp. 69–70. Selling obsolete European goods on the American frontier was a common trading practice.

14 Cf. Braun and Schneider, *Historic Costume in Pictures*, Dover, (Toronto, 1975), Plate 53.

15 Ibid., Plate 61.

16 Valerie Cumming, *A Visual History of Costume*, p. 143 and Figures 8, 34, 51, and 116.

17 He also wore "a hat buckled with a silver buckle." "Joshua Scottow and Henry Josselyn to Governor Leverett, September 15, 1676," unpublished document in the collections of the Maine Historical Society, provided courtesy of Emerson Baker.

18 [?], [Boston?], to John Davenport, July 5, 1662, *Davenport Letters*, quoted in Bernard Bailyn, *The New England Merchants in the Seventeenth Century*, Harvard University Press, (Cambridge, Mass., 1955), p. 110.

19 Geoffrey Egan, pers. comm., January, 1984. James Bradley, pers. comm., November, 1985. Jack Anderson, pers. comm., December, 1985.

20 "Journal du voyage de M. Brunet en le Navire Callessien par les ordre de Monsieur Lintendant Colbert de Terrou, 15e Juin–25e Dec, 1673" *PAC*, MG7 1A5, vol. 106, no. 864, pp. 37, 41.

21 Geoffrey Egan, pers. comm., March, 1985. See also Walter Endrei and Geoffrey Egan, "The Sealing of Cloth in Europe, with Special Reference to the English Evidence," *Textile History*, vol 13, no. 1, (1982), p. 55.

22 Kristoff Glamann, "European Trade 1500–1750," *The Fontana Economic History of Europe*, William Collins Sons & Co., Ltd., (Glasgow, 1974), pp. 499–509.

23 William C. Ketchum, Jr., *Chests, Cupboards, Desks, and Other Pieces*, Knopf, (New York, 1982), p. 252.

24 Lyle Stone, "Fort Michilimackinac," p. 193 and Figure 112. Stone very tentatively assigns these hinges to the British occupation of the site.

25 Walter Dyer, "The American Chest," *The Antiquarian*, (October, 1931), p. 37. Thomas Voss, *Antique American Country Furniture, a Field Guide*, J. P. Lippincott, (Philadelphia, 1978), p. 93. Henry Erving, *The Hartford Chest*, Yale University Press, (New Haven, 1934), p. 7. See also Elizabeth Fairbanks and Jonathan Bates, *American Furniture 1620 to the Present*, Richard Marek, (New York, 1981), pp. 5–6 and illustrations. We thank U.M. student Prudence Doherty for these references.

26 At the 18th-century British Fort Ligonier, a similar hinge design has been described as a "wagon toolbox" strap hinge. Jacob. L. Grimm, "Archaeological Investigation at Fort Ligonier 1960–1965," *Annals of the Carnegie Museum*, vol. 45, (1970), p. 80.

27 Lyle Stone, "Fort Michilimackinac," p. 195 and Figure 113.

28 An H-shaped horn comb was recovered from the chest in the cellar of the Dwelling. Such combs are common in post-medieval sites throughout Europe, and seem to differ very little from one another in basic design. The Pentagoet specimen is square ended and double sided, and matches a comb from Plymouth, England in Graham J. Fairclough, *St Andrews Street: 1976*, Plymouth Museum Archaeological Series, no. 2, (Plymouth, 1979), Figure 54(36).

29 "Letter of Henri Brunet to his sister, Boston, le 4e Fevrier, 1675," Collection Clairambault, *PAC*, MG7 I A5, vol. 106, no. 864, p. 69.

30 Alan Thomson, Francis Grew and John Schofield, "Excavations at Aldgate 1974," *Post-Medieval Archaeology*, vol. 18, p. 118 and Figure 59(1-1-108).

31 Peter Morrison, pers. comm., November 26, 1986.

32 Barry C. Kent, *Susquehanna's Indians*, The Pennsylvania Historical and Museum Commission, (Harrisburg, 1984), pp. 22–23, 258–258. James W. Bradley, pers. comm., March, 1987.

33 Christopher L. Miller and George R. Hamell, "A New Perspective on Indian-White Contact: Cultural Symbols and Colonial Trade," *The Journal of American History*, vol. 73, no. 2, pp. 311–328.

34 Cf. Paul Firens, *Les Nains*, Librairie Floury, (Paris, 1933).

35 Allan J. Wingood, Peggy Wingood, and Jonathan Adams, *"Sea Venture" the Tempest Wreck*, The Sea Venture Trust, (Bermuda, 1986), p. 21.

36 Geoffrey Parker, "The Emergence of Modern Finance in Europe, 1500–1750," *Fontana Economic History of Europe*, Wm. Collins Sons & Co., Ltd., (Glasgow, 1974), p. 531.

37 Personal communication, Richard Doty, The American Numismatic Society, New York, April 12, 1984. The coin is struck off-center on a blank which is slightly larger than is common for coins of this type.

38 This coin came from N69E115, directly beneath a layer of thatch. It apparently was dropped within some makeshift lean-to or similar structure built up against the East Curtain, its context preserved when the stone wall of the fort was subsequently toppled.

39 The denomination has been variously described as a "*dam*," "paysa", or "falus," and in any case was not worth much then nor is it today. Peter Seaby and Nicholas Lowick, personal communication, November 13, 1984; also Michael Bates and Charles K. Panish, personal communication December 22, 1983. See Charles J. Rogers, "Mogul Copper Coins, *Journal of the Asiatic Society of Bengal*, no. 64, (1895), p. 178, no. 60.

40 Indeed it is remotely possible that this individual was himself a native from east India employed by the French.

41 Norman F. Barka, "Historic Sites Archaeology at Portland Point," pp. 314–318 and Plate 96.

42 A site occupied well before Pentagoet and Fort La Tour, Champlain's Habitation also boasts some 16th-century specimens dating from the reign of Henry III of France. Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 139–144 and Figure 88.

43 However, Dr. Wheeler notes, "In the year 1863, on the beach just below Fort Pentagöet, a gold 'demi-Louis' was found. It was dated 1642 and was in good preservation and but little worn." George A. Wheeler, *Castine Past and Present*, (Bangor, 1896), p. 81.

44 James P. Baxter, "The Trelawny Papers," *DHSM*, vol. 3, illustration facing p. 7. George A. Wheeler, *Castine Past and Present*, p. 81. Joseph Williamson, "Castine and the Old Coins Found There," *MeHS*, vol. 6, pp. 107–126. William Willis, "Remarks on Coins Found at Portland in 1849 and Richmond's Island in 1855," *CMaineHS*, vol. 6. pp. 127–151.

45 James W. Bradley, pers. comm., March, 1987.

46 Verrazano is quoted in Christopher L. Miller and George R. Hamell, "A New Perspective on Indian-White Contact: Cultural Symbols and Colonial Trade," *The Journal of American History*, vol. 73, no. 2, p. 311.

47 "Journal du voyage de M. Brunet en le Navire Callessien par les ordre de Monsieur Lintendant Colbert de Terrou, 15^{e} Juin–25^{e} Dec, 1673," *PAC*, MG7 1A5, vol. 106, no. 864, p. 42.

48 This is apparently an example of a "flushloop" type bell described by Jelks, although the back, by which this type is defined, is missing. Edward B. Jelks, "The Gilbert Site: a Noteño Focus Site in Northeastern Texas," *Bulletin of the Texas Archaeological Society* 37, (Austin, 1966), p. 87.

49 Although clear on examples from other sites, no solder has been preserved on the Pentagoet specimen.

50 Ivor Noel Hume, *A Guide to Artifacts of Colonial America*, Knopf, (New York, 1970), p. 58.

51 Ian W. Brown, "Trade Bells," in *Burr's Hill: A 17th Century Wampanoag Burial Ground in Warren Rhode Island*, Susan G. Gibson, ed., Haffenreffer Museum of Anthropology, Brown University, (Providence, 1980), pp. 92–95 and Figures 80 and 81.

52 Cf. various articles in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, Research Records, no. 16, Rochester Museum & Science Center, (Rochester, 1983): Charles F. Wray, "Seneca Glass Trade Beads c. A.D. 1550–1820," p. 41. Ian T. Kenyon and Thomas Kenyon, "Comments on 17th Century Glass Trade Beads From Ontario," pp. 59–74. Barry C. Kent, "The Susquehannah Bead Sequence," pp. 75–81.

53 Later, particularly with the introduction of seed beads towards the end of the 17th century, beads took on an new significance in embroidery, and began to occur on occupational sites in huge quantities where they were probably too small and too plentiful to bother to recover and recycle.

54 Charles F. Wray, "Seneca Glass Trade Beads c. A.D. 1550–1820," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, p. 47.

55 See Kenneth E. Kidd and Martha Ann Kidd, *A Classification System for Glass Beads for the Use of Field Archaeologists*, Canadian Historic Sites: Occasional Papers in Archaeology and History, no. 1, National Historic Sites Service, (Ottawa, 1970), pp. 48–50, and Figure 1.

56 Of the remaining beads, one is a pure white oval form, and another is a translucent tubular bead with three red stripes. Alaric Faulkner has examined this collection first hand, but data can also be found in James W. Bradley, "Blue Crystals and Other Trinkets: Glass Beads from 16th and Early 17th Century New England," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, p. 38, Table 1.

57 Françoise Niellon and Marcel Moussette, *Le Site de l'Habitation de Champlain à Québec*, pp. 146–150, Table 23 and Figure 89.

58 This argument is made somewhat superficially by Christopher L. Miller and George R. Hamell, "A New Perspective on Indian-White Contact: Cultural Symbols and Colonial Trade," pp. 311–328. A more convincing argument appears in Hamell's original paper, "Trading in Metaphors: The Magic of Beads," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, pp. 5–28.

59 All glass beads are classified according to the Kidd typology. Kenneth E. Kidd and Martha Ann Kidd, *A Classification System for Glass Beads for the Use of Field Archaeologists*. It is difficult, however, to match the Pentagoet IIa beads precisely with the colors used in the Kidd typology. The variety identified here (46) represents a "shadow blue" bead of "medium" size, although other researchers might consider some other shade such as "robin's egg blue" to be a better match.

60 Such a belt has been recovered more or less intact from Burr's Hill. Katherine Billings, "Beads of Shell and Glass," in *Burr's Hill: A 17th Century Wampanoag Burial Ground in Warren Rhode Island*, Susan G. Gibson, ed., pp. 118–127 and Figure 116.

61 Cf. Charles F. Wray, "Seneca Glass Trade Beads c. A.D. 1550–1820," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, p. 47.

62 Paul R. Huey, "Glass beads from Fort Orange (1624–1676), Albany New York," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, p. 108. It has also been suggested that the various beads found in the Chesapeake Region after c. 1650, when the fur trade became exhausted and the European economy turned almost exclusively to raising tobacco, should be attributed to European dress. Henry M. Miller, Dennis J. Pogue, Michael A. Smolek, "Beads From the Seventeenth

Century Chesapeake," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, p. 143.

63 Paul R. Huey, "Glass beads from Fort Orange (1624–1676), Albany New York," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, p. 86.

64 Karlis Karklins, "Glass Beads From a Late 16th–Early 17th Century Glasshouse in Amsterdam," and Jan M. Baart, "Glass Bead Sites in Amsterdam," both papers presented at the annual Meetings of the Society for Historical Archaeology, Williamsburg, Virginia, 1984. Several attempts which have been made to distinguish the products of Venice, Amsterdam, and other European bead manufacturing sites on the basis of their physical and chemical properties, but they have not been particularly fruitful. Karlis Karklins, "Dutch Trade Beads in North America," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, p. 117.

65 Peter P. Pratt, "Glass Trade Beads Among the Iroquois: a Perspective," in Charles F. Hayes, ed., *Proceedings of the 1982 Glass Trade Bead Conference*, p. 216.

Chapter 10

Afterthoughts

The archaeological portrait of Pentagoet can not help but influence our characterization of early French colonial settlement. It has become almost trite to credit the early French settlers with a superior ability to adapt to their surroundings. Typifying this perspective is a statement made by Anne Meacham Rick in her analysis of the faunal remains from Champlain's Habitation:

"In contrast to the English, the French observed the natives, studied the environment, and in many ways adjusted to it, particularly in the beginning."[1]

While there is certainly some merit to this view, the evidence from Pentagoet shows it to be seriously oversimplified.

The fort at Pentagoet was a European world. The private investment of d'Aulnay in a permanent stone construction shows the long-term French commitment to the extractive economy of the area, particularly the fur trade. The fort was vernacular in architecture, but well planned, compact and efficient, and allowed a couple dozen soldier-employees to control commerce along the Penobscot and the immediate coast. It was in all respects a European construction—a transplant which might have been as much at home in any other French colony around the world as in western Acadia.

The lifeways of the French do not present a uniform impression to the modern observer, but rather a series of contrasts which at first seem paradoxical. This is partly due to the "culture shock" which is inevitable in dealing with a way of life which far removed from our own, having been extinct for nearly three and a half centuries. The first French inhabitants kept their food warm at the table with fancy chafing dishes, served brandy from miniature barrel costrels, and prepared bear heads for presentation on a platter in a culinary style which is both elegant and gruesome to modern eyes. Later they brought along matching eating utensils—pieces of the most delicate stemmed glassware and knives with handsomely carved bone handles. But they probably ate most of their mixed-meat stews and bird pies with their fingers, and threw the left-over waste and the garbage from food preparation anywhere close at hand—on the floor, in the alley, in the cellar or wherever else was immediately convenient.

In spite of the military nature of this establishment, these Frenchmen, leaders and employees alike, show up in the archaeological record as individuals. There was nothing uniform or "Government Issue" about the outfits of either d'Aulnay's private army of soldier-employees or the later garrison under the command of ex-members of the regiment of Carignan Salières. There was no standard mess kit; each man had his own knife, but these were as different one from another as were the towns in France from which the recruits originated. There was similar variation in form and markings of the axes, each one probably manufactured by a different smith, according to different patterns. The trunks which held the men's personal possessions showed differences in the manufacture of locks and hinges which sets them clearly apart from each other. Even the firearms themselves were a hodgepodge of weapons working on different firing mechanisms. In fact the only standardization of military supplies appears to have been in gunflints—the spall types manufactured on location during d'Aulnay's governorship, and the mass produced blade types, evidently manufactured abroad, which were supplied during Pentagoet III. It seems that for the most part, soldiers and perhaps even indentured servants were expected to provide much of their own equipment.

In many cases the cultural baggage which the French brought seems, at first blush, to be incongruous, if not entirely superfluous. But the soldiers and men were not just camped here; they were making efforts to establish a European way of life which, for all they knew, could have been permanent. Contrary to the suggestion that they were quick to adopt native ways, they seem to have been rather strictly bound to the competence which they brought with them. For example, they frequented the coasts of Acadia not clad in skins and rags, but in fashions which, although they might have been a little out of date, conformed to the standards of dress in their native France. The leaders dressed their part as cavaliers, gold galloons on their clothing, swords at their waist and spurs jangling—but with no horses to ride.

The workmen and soldiers apparently were no less committed to their traditions. While they may have occasionally replaced a worn out frog with one of the fancier trade beads, and may have been forced to make lace tips out of sheet copper salvaged from worn out kettles, nevertheless they fastened their doublets and held up their breeches in the same way as other Europeans. Their only major distinguishing characteristic, at least from the staid perspective of the Massachusetts Puritan, was that they overdressed in gaily colored ribbons.

Within their limits, the French were indeed resourceful, especially during Pentagoet I, but much of this resourcefulness has little to do with their observation of the natives. Certain durable goods in 17th-century rural France were often in short supply, and the predicament must have been familiar to all would-be settlers of Acadia. The infrequent supplies required that the occupants of Pentagoet be able to repair and recycle durable goods in such a way as to stretch every last bit of usefulness from them. D'Aulnay came well prepared in this regard; facilities such as the workshop and forge at Pentagoet surely served the garrison and their Indian clients well. But whether it was patching cracks in pistol barrels, mending copper kettles with sheet copper rivets, cutting up old kettles to make other fittings and ornaments, replacing an old knife handle grip with a new slate one, or making gaming tokens out of old Delft potsherds, these were European technologies and products. That some of the resulting products conformed to native standards is evident in the similarity of the simpler items: "lace tips" and "brass tinkling cones,"[2] "gaming tokens" and "Indian-worked Delft disks."[3] It is in this area, after all, where European and Indian prototypes ran parallel, that we should expect the greatest transfer of ideas to take place.

Repair and maintenance can only go so far in postponing the need for resupply of durable goods, and shortages of key items must have jeopardized settlement at Pentagoet from its inception. But even in Pentagoet III, when the situation seems to have been at its worst, the overwhelming majority of goods came through French channels—merchants from La Rochelle such as Le Borgne, Brunet, and possibly d'Artiaque. Garments and ceramics were French, and most of the tobacco pipes were Dutch—or at least non-English. The variety of firearms also appears to have been of Dutch or French manufacture. If the French were dependent on the New Englanders for supply, it was not for durable goods. In this sense the occupants of Pentagoet were far from being in the "economic stranglehold" of Massachusetts Bay, as some scholars have maintained.[4]

Yet there is no question that the French at Pentagoet did trade repeatedly with the English of Massachusetts Bay. Commerce with one's potential enemies seems to have been a way of life on a frontier where opportunity took precedence over political allegiance. Just as supplying arms to the Indians was common practice for merchants of both nationalities, so too was dealing in provisions to each other. During Pentagoet I, d'Aulnay's company had less to fear from New Englanders than from their own countryman, Charles de La Tour. During Pentagoet III, the merchant Henri Brunet, although he seems to have aroused some jealousy at Pemaquid, appears to have been tolerated in Boston.

While the two French occupations shared a common approach to defense, there are some important differences between Pentagoet I and III in subsistence strategies. Anne Meacham Rick is correct in emphasizing that the French appear to have taken better advantage of their surroundings during the earliest stages of colonization. Under d'Aulnay's leadership, half of the mammalian dietary remains were wild species—seal, bear, beaver, moose and deer—indicating that he made good use of the native fauna. Hunting was no great difficulty in early Acadia, and its only drawback was that it distracted the men from their regular business.[5] To cut down on the investment in hunting, d'Aulnay apparently introduced livestock—swine, sheep and cattle—which were probably kept within a barnyard to the west of the fort. Not only did d'Aulnay come well prepared to maintain the tools and equipment necessary to operate the fort, he also had the foresight to provide for the settlement's immediate and future self-sufficiency. He established a farm at the mouth of the St. George River, built a mill somewhere in the vicinity, and planted an orchard of fruit trees just to the west of Pentagoet.

The later occupants do not appear to have been as well prepared as frontiersmen. Reluctant to grow maize, they nevertheless had no seeds to plant European grains. Native mammals were nearly excluded from the garrison's diet, leaving them totally dependent on domesticates. In the best of times they may have been more concerned with recreating a traditional cuisine than with exploiting local resources. When faced with starvation they turned to the consumption of domestic cat. Overall, the fare in Pentagoet III is more the diet of reluctant transplants than adventurous pioneers.

It would be an injustice, however, to characterize these later inhabitants as incompetents, unaware of the potential of their surroundings. This was, after all, the crew which contributed to Grandfontaine's detailed, if grossly distorted map of Acadia and New France. They were acutely aware of their surroundings, but looked not at their novelty but rather at their potential for fulfilling Colbert's mandate to create a "Little France" in Acadia. Furthermore, they counted among their numbers the young ensign Jean-Vincent de Saint-Castin, a man who was to take an entirely different approach to settlement. After the destruction of Pentagoet, Saint-

Castin became the quintessential French frontiersman, marrying an Etchemin, raising a family among the Indians, and establishing the lifestyle of *Captain des Sauvages*.

Because of the excellent state of preservation of the site, Pentagoet may stand for some time as the type site by which other early Acadian settlements may be interpreted. But this archaeological portrait of Pentagoet has been only partially completed. Fully half of the fort itself has yet to be unearthed. The earliest structure, which we have called "D'Aulnay's House" on the basis of the early date of the several luxury artifacts associated with it, has only been sampled. Of the structures within the fully developed fort, the Guard House is apparently untouched. Testing late in the current project indicated that useful remains still survive of the Magazine, even though its cellar was excavated nearly a century ago.

Indeed there is considerable information left in the areas that we have excavated, but where digging stopped at the earliest floors of the fort. We know, for example, that many Pentagoet I artifacts remain packed into the earthen floors of the Smithy/Workshop, and that small artifacts repeatedly slipped between the floorboard of the Officers' Quarters and the Dwelling. Furthermore, the Plymouth Colony occupation left considerable remains which we have only sampled. The point was driven home early on, during the excavation of the Dwelling. Digging in an area which had no flooring because it was the location of the upper stairway, an excavator dug through the Pentagoet levels and into the redeposited shell below. There a huge section of a halberd emerged—a medieval style of weapon typical of the arms the English brought to the American colonies during the first period of settlement (Figure 10.1). Tempting though may be to look for further evidence of the Pilgrim's truck house, it would not be justified to dismantle Pentagoet in the process.[6]

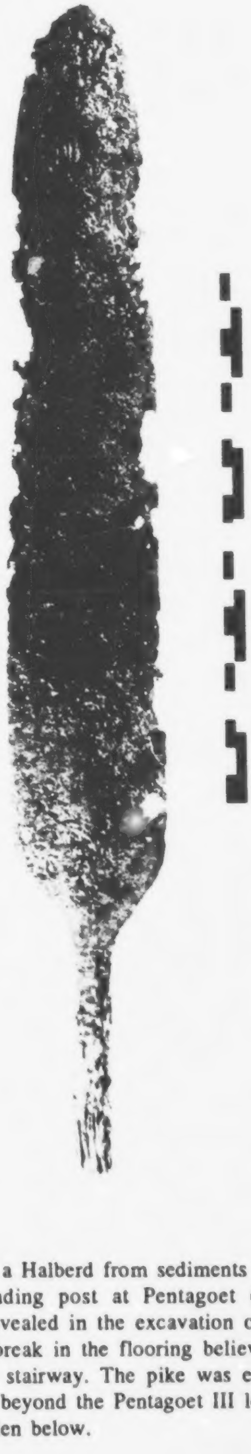

Figure 10.1 Head of a Halberd from sediments dating to the Plymouth Colony trading post at Pentagoet (1629–1635). This specimen was revealed in the excavation of Pentagoet's Dwelling (1.2), in a break in the flooring believed to be the location of the upper stairway. The pike was exposed when excavation proceeded beyond the Pentagoet III levels into the redeposited shell midden below.

Relatively little is known about the areas outside the inner stone curtain; the two northern bastions have only been sampled, and there is every reason to believe that further testing in this area could give a better understanding of the defenses and would identify the lookout which stood on the northeast bastion. The palisade line has not been traced for any length, and the nature of the construction of the outer envelope is still in question; remnants may still survive on the northern and eastern sides of the fort. Other documented appurtenances have yet to be identified and examined, such as the bread oven (or it is a forge?) and shed which Grandfontaine's plan places somewhere near the entrance to the fort, and the barn and orchard across the stream to the west.

The fort is only part of the French settlement pattern of the immediate region. Homesteads of Grandfontaines soldiers lie scattered, but as yet undetected around the Castine peninsula. During D'Aulnay's tenure the garrison was apparently engaged in shipbuilding, but the site of these activities still eludes us. A map in Paris shows the location of a house built for d'Aulnay near the mouth of the St. George River in South Cushing, Maine, which has yet to be explored. Here may be located the farm and mill which supplied the flour for Pentagoet's bread.[7] Finally, a mission lies somewhere to the west of the site, perhaps in the vicinity of the present site of Fort Madison, and nearby were the camps of the Indians whose trade was the fort's principal reason for being.

The recent excavations, then, have only touched the most obvious physical remains of French settlement. It is but the first volume in the archaeology of Acadian Maine, and will, we hope, be followed by further work—especially at such known sites as d'Aulnay's house on the St. George River and the Habitation of Saint-Castin. With the cooperation of the landowners and public awareness of our obligations to preserve the region's archaeological resources, more of these Acadian sites can be identified, examined, and in some special cases, perhaps, reconstructed for public interpretation. Ultimately, a revised interpretation of Pentagoet is inevitable and welcome; with all these resources available, we can expect it to be based on real evidence, and not on fantasy.

Notes to Chapter 10: Afterthoughts

1 Anne Meachem Rick, "Étude zooarchéologique du site de l'Habitation de Champlain, periodes 1608–1632 et 1675–1700," in Françoise Niellon and Marcel Moussette, *Le site de l'Habitation de Champlain à Québec: étude de la collection archéologique (1776–1980)*, Dossiers 58, Les Publications du Québec, (Québec, 1985), Appendix 2, p. 329. English translation by A. Faulkner.

2 George I. Quimby, "Indian Culture and European Trade Goods," University of Wisconsin Press, (Madison, 1966), Figure 14.

3 Barry C. Kent, *Susquehanna's Indians*, The Pennsylvania Historical and Museum Commission, (Harrisburg, 1984), p. 257.

4 George A. Rawlyk, *Nova Scotia's Massachusetts: A Study of Massachusetts-Nova Scotia Relations, 1630 to 1784*, McGill-Queen's University Press, (Montreal, 1973), pp. 34, 36, 42, and 43. Baker prefers the term "economic hammerlock." Emerson W. Baker, "Acadian Sites," paper delivered at the annual meetings of the Society for Historical Archaeology, Boston, 1985.

5 William F. Ganong, *The Description and Natural History of the Coasts of North America by Nicolas Denys*, The Champlain Society, (Toronto, 1908), pp. 154–155.

6 Students of the Plymouth colony outposts have ample information on outposts elsewhere, for example at Aptuxet on Buzzard's Bay. In Maine archaeological work is currently in progress at the supposed site of Cushnoc, in Augusta, where the remains of an "earthfast" post-in-ground structure have already been identified.

7 Indicated in the legend as "E, Defriché ou M^r D'aulnay auoit autrefois fait Construire une Maison." "Carte De La Riviere St George Et Environs Et d'une partie de la Coste [c. 1688]," Bibliothèque Nationale, Clich. 2960, Port 135, Div. 3, Pièce 1.

APPENDIX A

Descriptions of Pentagoet in 1670 and 1671

The three documents included below in French and in English, were prepared on the occasion of the transfer of Pentagoet from English to French control on August 5th and 6th, 1670, and in 1671. The first document, called here for convenience the "Act of Surrender," was actually an account prepared by the French party led by the Chevalier de Grandfontaine and was made at the behest of their English counterparts. Its purpose was to accommodate Sir Thomas Temple, who wished to be reimbursed by the English government for improvements made to the property he was obliged to surrender. The second account, "The State of the Fort," was evidently intended for Talon, the Intendant of New France, as an account of property received. The final piece is a detailed key to a pencil sketch drawn by Grandfontaine c. 1671 apparently included as part of a report to Talon and Colbert which has not survived (see Figure 4.20).

The "Act of Surrender" was the first composed, and the English version which survives is an 18th-century copy of the original translation of Grandfontaine's account. The original French account apparently has been lost. The version reproduced here has surely been re-translated from the 1750 English copy back into French, using more modern orthography, and introducing new errors into the narrative. Note the mis-translation of the chapel's construction "built with Terras" [built with daub] to "bâtie sur une terasse" [built on a terrace].

"The State of the Fort" was apparently written from the same notes as the "Act of Surrender," but with some substantial embellishment in building dimensions and other details, generally improving on the size and condition of the fort. The original French survives in this case.

The "Key to the Grandfontaine Plan" was apparently made independently from the other two, after Grandfontaine had set all the artillery in place, and made some repairs to the Barracks. While the key describes structures and other important architectural features, most of these are indicated only by letters on the plan. The sketch itself, bristling with cannon, depicts only the defensive works.

Probable transcription errors are entered in brackets, as are the authors' comments.

1

"Act of Surrender of Fort Pentagoet..."

Acte de la reddition du fort de Pentagoet dans L'Acadie, par le Capitaine Richard Walker, au Chevalier de Grand-Fontaine du 5 Août 1670, avec un détail particulier de l'etat dudit fort, & de tout ce qui étoit & restoit dans ledit fort au temps qu'il fut rendu audit Chevalier de Grand-Fontaine.

Le cinquième d'Août de l'an 1670, étant dans le fort de Pentagoet, dans le pays de l'Acadie, dont nous avons pris possession pour Sa Majesté très Chrêtienne, le dix-septième du mois dernier; le Capitaine Richard Walker, ci-devant député Gouverneur dudit fort & dudit pays de l'Acadie, représentant la personne de Thomas Temple, Chevalier Baronnet, accompagné d'Isaac Garden, Gentilhomme, nous ont requis conjointement de leur donner un detail particulier de l'état dudit fort, & de tout ce qui étoit & restoit dans ledit fort lorsque le susdit Capitaine Richard Walker nous en a mis en possession, afin d'avoir un acte par écrit à remettre au Chevalier Temple pour leur décharge; ce à quoi nous avon consenti: Et pour cet effet, Nous, en présence des susnommés, & du Sieur Jean Maillard, Écrivain du Roi sur le vaisseau de Sadite Majesté, appelé le Saint Sebastien, commandé par M. de la Clocheterie, comme aussi d'un autre Secrétaire, écrivant sous nous, de la manière & forme, ainsi qu'il suit.

I°. A l'entrée dudit fort, à main gauche, nous avons trouvé dans la cour, un Corpes-de-garde de la longueur d'environs quinze pas, sur dix de large, ayant à main droite une maison de même longueur & largeur, bâtie de pierre de taille, & couverte de bardeau; & au-dessus une Chapelle de la longueur d'environs six pas sur quatre de large, couverte de bardeau, l'autre découverte, & bâtie sur une terasse sur laquelle il y a une petite tour qui renferme une petite cloche

pesant environ dix-huit livres.

Plus, à main gauche, en entrant dans ladite cour, il y a un magasin à deux étages, bâti de pierre, & couvert de bardeau, de la longueur d'environs trente-six pas, sur dix de large, lequel magasin est ancien, & a besoin de beauboup de reparations; audessous une petite cave, dans laquelle il y a un puits.

Et de l'autre côte de la cour à droite, Il y a une maison de la même longueur & largueur que le magazin, dont une moité est couverte de bardeau, & a besoin de beaucoup de réparations, lesquelles choses nous avons examinées & observées exactement.

Sur le rempart dudit fort, & en présence de notre Canonier, que nous y avons fait venir afin d'examiner les différentes pièces de canon, les canons sont comme il suit.

1°. Six canon de fer, portant des boulets de six livres, dont deux sont fournis de nouveau affûts, & les quatre autres de vieux affûts, avec des roues neuves; deux de ces canons pèsant chacun mille huit cens cinquante livres; trois, chacun mill cinq cens livres, & l'autre deux mille deux cens trente livres.

Plus, deux canons de fer, portant des boulets de quatre livres, ayant de vieux affûts, avec des roues neuves; l'un pesant mille trois cens dix livres, & l'autre mille deux cens trente-deux.

Plus, deux petites coulevrines de fer, portant des boulets de trois livres, ayant de vieux affûts, avec des roues neuves, pesant chacune neuf cens vingt-cinq livres.

Ensuite nous sommes sortis dudit fort, & sommes allez à une petite plate-forme, près le bord de la mer, sur laquelle nous avons vû deux canons de fer, portant des boulets de huit livres, avec de nouveaux affûts et des roues neuves; l'un pesant trois mille deux cens livres, & l'autre trois mille cent livres.

Ce qui fait en tout douze canons de fer, pesant vingt-un mille cent vingt-deux livres.

Plus, nous avons trouvé dans ledit fort six pierriers sans leurs boetes [boîtes?], pesant mille deux cens livres.

Plus, deux cens boulets de fer depuis trois jusqu'à huit livres de balles.

Enfin, à trente ou quarante pas dudit fort, au dehors il y a une petite maison de la longueur d'environs vingt pas, sur huit de large, bâtie de planches & à demi couverte de bardeau, qui ne sert à d'autre usage qu'à loger le bétial.

Plus, environs à cinquante pas de ladite maison, il y a un jardin carré enfermé de pieux, dans lequel il ya a cinquante ou soixante arbres fruitiers.

Lesquelles choses susdites nous avons vûes & reconnues exactement, en présence des personnes soussignées; & je reconnois qu'elles sont de la qualité & condition ainsi qu'il est déclaré ci-dessus; & du tout nous avons donné le présent état circonstancié, pour qu'on puisse tenir compte de leur valeur audit Chevalier Thomas Temple, à ses hoirs ou à ses ayant cause, ou à qui il appartiendra: Et à cet effet, avons, avec les sus-nommés, signé & fait certifier le présent par notre Secrétaire, le jour & an que dessus. Signé *le Chevalier de Grand-Fontaine, Jean Maillard, R. Walker, Isaac Garner* [sic], *Marshal* Secrétaire.

Je certifie que ce papier est une copie véritable, collationée à l'original dans les registres de ce Bureau. Du Bureau des Plantations, à Whitehall, le 12 Juillet 1750.
Signé Thomas Hill.

Act of the surrender of Fort Pentagoet, in Acadia by Captain Richard Walker, to Chevalier de GrandFontaine, on the 5th of August, 1670, with a particular account of the condition of the fort and of what remained in it at the time it was surrendered to the said Chevalier de Grand-Fontaine.

The Fifth Day of *August* 1670, being in the Fort of *Pentagoet*, in the Countries of *Acadia*, whereof we took Possession for his most Christian Majesty the Seventeenth Day of last Month, Captain *Richard Walker*, heretofore Deputy Governor of the said Fort and of the said Countries of *Acadia*, representing the Person of Sir *Thomas Temple*, Knight and Baronet, accompanied with *Isaac Garden*, Gentleman, did jointly require of us, that we should give a particular Account of the Condition of the said Fort, and of all things that were and did remain in the said Fort when the Possession thereof was given unto us by the abovesaid Captain *Richard Walker*, that they might have an Instrument in Writing indented, to deliver to the said Sir *Thomas Temple* for their Discharges, whereunto we do accord; and for that End and Purpose, we, in the Presence of the above named, and of the Sieur *Jean Maillard*, the King's Scrivener in the Ship of his Majesty, called the *St. Sebastian*, commanded by Monsieur *la Clocheterie*, as also of another Secretary, writing under Us, the said Proceedings in Manner and Form following.

First, at the entring in of the said Fort upon the left Hand, we found a Court of Guard of about fifteen Paces long, and ten broad, having upon the right Hand a House of the like Length and Breadth, built with hewen Stone, and covered with Shingles, and above them there is a Chapel of about six Paces long and four Paces broad, covered with Shingles and built with Terras, upon which there is a small Turret, wherein there is a little Bell, weighing about eighteen Pounds.

More, upon the left Hand as we entered into the Court, there is a Magazine, having two Stories, built with Stone, and covered with Shingles, being in Length about thirty six Paces long, and ten in Breadth, which Magazine is very old and wanted much Reparation, under which there is a little Cellar, wherein there is a Well.

And upon the other Side of the said Court, being on the right Hand, as we enter into the said Court, there is a House of the same Length and Breadth as the Magazine is, being half covered with Shingles and the rest uncovered, and wanted much Reparation; these we have exactly viewed and taken notice of.

Upon the Rampart of the said Fort, and in Presence of our Canonier, whom we caused to be there present, to take a View of the several Pieces of Cannon, are as followeth.

First, six Iron Guns carrying a Ball of six Pounds, whereof two are furnished with new Carriages, and the other four with old Carriages and new Wheels; Two of them weighing eighteen hundred and fifty Pounds, each of them: Three weighing each of them fifteen hundred Pounds; the other weighing two Thousand two Hundred and thirty Pounds.

More, two Iron Guns carrying a Ball of four Pounds, having old Carriages and new Wheels, one weighing one Thousand three hundred and ten Pounds, the other weighing one Thousand two Hundred and thirty two.

More, two small Iron Culverines, carrying a Ball of three Pounds, having their Carriages old and their Wheels new, weighing each of them nine Hundred twenty five Pounds.

Afterwards we went out of the said Fort, and came to a little Plat-form near adjoining to the Sea, upon which we surveyed two Iron Guns, carrying a Ball of eight Pounds, furnished with new Carriages and new Wheels, the one weighing three Thousand two hundred Pounds, and the other three Thousand one Hundred Pounds.

Which are twelve Iron Guns, weighing twenty one Thousand one Hundred twenty and two.

More, we do find in the said Fort, six Murtherers without Chambers, weighing twelve hundred Pounds.

More two hundred Iron Bullets, from three to eight Pounds.

Lastly, about thirty or forty Paces from the said Fort, there is a small Out-house, being about twenty Paces in Length and eight in Breadth, built with Planks, and half covered with Shingles, which do not serve for any Use but to house Cattle.

More, about fifty Paces from the said Out-house, there is a square garden, enclosed with Rails, in which garden there are fifty or sixty Trees bearing Fruit.

All which Things above writ, we have exactly viewed and taken notice of, in the Presence of the Persons underwritten; and I do acknowledge that they are in the Quality and Condition as is above declared; whereof we have given this particular Account, that the Value thereof may be made good to the said *Thomas Temple*, or to his Heirs or his assignees, or to whom it shall belong; whereunto we, with the above named, have put our Hands, and caused our Secretary to witness the same, the Day and Year above writ. Signed *le Chevalier de Grand-Fontaine, Jean Maillard, Richard Walker, Isaac Garner* [sic], *Marshal* Secretary.

I do hereby certify that this Paper is a true Copy compared with the Original in the Books of this Office. Plantation Office, Whitehall, July the 12th 1750.
Signed Thomas Hill.

Memorials of the English and French Commissaries Concerning the Limits of Nova Scotia or Acadia, vol. 1, (London, 1755), pp. 606-610. Also recorded in *Memoires des Commissaires du Roi de de ceux de Sa Majesté Brittanique*, Tome 2, (Paris, 1755), pp. 319–323.

2

"The State of the Fort..."

ESTAT DU FORT ET PLACE DE PENTAGOUET FAICT EN L'ANNEE 1670, LE SIX AOUST LORSQUE LES ANGLOIS L'ONT RENDU

(N° 46) (N° 227)

Premièrement un fort avec quarte bastions bien flanquez lesquels bastions en prenant à la pointe jusques à l'extremite de la terrasse en dedans sont de 16 pieds.

Les terrasses par dedans sont de huict pieds en les courtines.

En entrant dans le dit fort il y a, à main gauche, un corps de garde de 12 à 13 pas en longeur et en largeur 6 pas.

Du mesme costé est un magazin bas avec un aultre d'égale grandeur et longeur, sçavoir 36 pas en longeur et de 12 en largeur couvert de bardaux, au dessoubs desquels magazins il y a une petite cave environ grande de la moitié des magazins dans laquelle il y a un puyts.

A main droite, en entrant dans le dit fort, il y a un logis de mesme grandeur que le susdit corps de garde dans lequel logis sont compris trois chambres.

Au dessus de l'entree qui est entre le corps de garde et le logis qui est à la droite, il y a un dosme contenant en sa longeur 8 pas et en sa largeur 6 pas, basty de charpente et bouzillage sur lequel est un petit clocher dans lequel est une cloche de métal pesant 18 livres, le tout couvert de bardaux.

A la main droite, est un logis de pareille longeur et largeur qu'au magazin avec le mesme étage excepté qu'il n'est pas tout couvert et qu'il n'y a point de cave, tous lesquels logis sont bastis de pierre de moyenne où il faut un peu de réparations.

A 60 pas de la place, il y a une cabanne à moitié de planches d'environ 25 pas de longeur et 12 de largeur, laquelle servoit à mettre des bestiaux.

A 140 pas de la place, il y a un jardin lequel a esté trouvé en assez bon estat, dans lequel il y peut avoir 70 a 80 pieds d'arbres fruitiers.

Quand à l'artillerie sur le rampart du dit fort, se sont trouvez les canons suivants, premièrement:

Six pièces de canon de fer de 6 livres de balles, deux ayant affuts neufs et les quatre aultres usez, et les roues neuves, lesquelles six pièces pesent, suivant leurs marques:

L'une de	1800	lbs.
L'aultre de	1230	"
Trois aultres de	1500	"
Une aultre de	1350	"

Plus deux pièces de quarte lbs. de balles garnies de leurs affuts usez les roues neuves, pesant,

une	1310
l'aultre	1232

Plus deux couleuvrines de fer du port de 8 lbs. [3 lbs.] avec leurs affuts, usez leurs roues neuves, pesant chacune 925.

Plus, sur une plate forme regardant sur la mer et desstaché du fort, deux pièces de fer de 8 lbs. de balles, garnies de leurs affuts neufs,

L'une pesant	3200
L'aultre	3100

Dans le fort s'est trouvé 200 boulets de calibre depuis 3 livres jusques à 8 lbs;

Finalement sur le rampart, se sont trouvez six pièces de fer demontez que l'on estime peser 1200.

Collections de manuscripts contenant lettres, memoires, et autres documents historiques relatifs a la Nouvelle-France, recueillis aux Archives de la Province de Québec, ou copiés a l'étranger, vol. 1, (Québec, 1883), pp. 200-201.

STATE OF THE FORT AND AREA OF PENTAGOET MADE IN THE YEAR 1760, THE SIXTH OF AUGUST WHEN THE ENGLISH SURRENDERED IT

(No 46) (No 227)

First of all, a fort with four well-flanked bastions, which bastions are sixteen feet measuring from the tip to the edge of the terrace.

The terraces within comprise eight feet in curtains.

Upon entering in the said fort there is, on the left hand, a guard house 12 to 13 paces long and 6 paces broad.

On the same side is a lower magazine with another of equal size and length [above it], namely 36 paces long and 12 broad, roofed with shingles, beneath which magazines there is a small cellar approximately as big as one half of the magazines, in which there is a well.

On the right hand on entering into said fort is a dwelling of the same size as the aforesaid guard house, which dwelling contains three rooms.

Above the entrance which is between the guard house [on the left] and the dwelling on the right, there is a cupola measuring 8 paces in length and 6 paces in breadth, built of timber-framed construction and daub, upon which there is a small belfry in which is a metal bell weighing 18 pounds, the whole being roofed with shingles.

On the right hand is a dwelling of length and breadth similar to the magazine, with the same two-storied structure, except that it is not completely roofed and there is no cellar at all, all of which dwellings are built of medium sized stone masonry, where a few repairs are needed.

Sixty paces from the site there is a shed half planked [half-timbered?] approximately 25 paces long and 12 broad, which serves as a place for the livestock.

One hundred and forty paces from the site there is a garden which has been found in rather good state, in which there may be 70 to 80 feet of fruit trees.

As for the artillery on the ramparts of said fort, the following cannon are found, firstly:

Six iron cannons carrying six-pound balls, two having new carriages and the other four worn ones with new wheels, which six pieces weigh, according to their markings:

One	1800	lbs.
The other	1230	"
Three others	1500	"
One other	1350	"

Also two four pounders furnished with worn carriages having new wheels,

one weighing	1310
The other	1232

Also two iron culverines of 8 pound [3 pound] capacity with their carriages worn and wheels new, each weighing 925.

Also, on a platform overlooking the sea and detached from the fort, two eight pounders furnished with new carriages

One weighing	3200
The other	3100

In the fort are found 200 bullets ranging in calibre from three pounds up to 8 pounds.

Finally, on the rampart are found six dismounted iron pieces which are estimated to weigh 1200.

English translation by A. Faulkner.

3

"Key to Grandfontaine Plan of Pentagoet"

[Fort de Pentagouet—Sans date]

A La place Du fort qui a quelque Vingt Cinq pas en quarré
B Le Magasin qui a quelque trents pas de long et quinze de large
C Le Corps de gardes qui a quelque quinze pas de long et dix de Large
D Un logement de lautre Costé du Corps de guard et de pareille Longeur et largeur et sur lesquels Il y a une petite chapelle et un Clocher ce qui faict un couvert pour lentree de la porte
F Un Corps de Logis pour les officiers de 15 pas de long et dix de large
g Un autre corps de logis de pareille longeur et largeur Pour Les ouvriers et Soldats
h Lentree Du fort
J Lentree Dun petit reduit qui est devant la porte
K La porte de Lenveloppe

L Deux platte forme ou il y Deux piece De huit Livre de Balle sur chacune
M Une autre platte forme avec des fraise de embrazeure De gazons ou il y a trois pieces deux de huit at une de trois
N De petits parapets aux angles Rantrant et aux angles flanque de Lenveloppe
O Deux guerritte Estence sur les deux angles des bastions
P Le Degré pour monter sur le rampart
Q Les palissades Dutour de Lenveloppe
R Un four et un huangart [hangar] devant la porte
S Un canal profond pour conserver leau Dans la Chaleur
T Un marigot pour mettre de petits bastiments
U Une pilotis pour empescher les flos de la mer
X Une Digue pour empescher la Demolition Des Terres qui soutienne Lenveloppe et platte formes
Y Une eminance qui Commande le fort
Z La fontaine que est ce quil y a de melleurs et de plus utille dans Lisle

Service Outre-Mer, Archives Nationales, Paris.

[Fort Pentagoet—without date]
A The fort's plaza [parade ground] which is about twenty-five paces square
B The magazine which is about thirty paces long and fifteen broad
C The guard house which is about fifteen paces long and ten broad
D A living quarters on the other side of the guard house of comparable length and breadth, and above which two structures there is a small chapel and a bell which makes a roof for the entrance to the gate
F A Barracks for the officers 15 paces long and ten broad
g Another barracks of similar length and breadth for the workmen and soldiers
h The entrance to the fort
I The entrance to a small redoubt which is in front of the gate.
K The gate of the envelope
L Two platforms each having two pieces which take eight pound balls.
M Another platform with sod fraises [retaining walls] and embrasures where there are three pieces, two of eight [pounds] and one of three.
N Some small parapets at the re-entrant angles and at the flanking angles of the envelope
O Two lookouts standing on the two angles of the bastions
P The steps for climbing onto the rampart
Q The palisades around the envelope
R An oven and a shed in front of the gate
S A deep channel to keep water during hot weather
T A cove for keeping small boats
U Pilings to impede the flow of sea water
X A sea wall to impede the demolition of the earth supporting the envelope and platforms
Y An Eminence which commands the fort.
Z The spring which is the best and most useful on the island

English translation by A. Faulkner.

APPENDIX B

Description of

The River and Country of Pentagoet and Other Surrounding Places

by the Chevalier de Grandfontaine [1671]

1 The fort [Pentagoet], whose location is commanded from all sides and there are some rather good lands for placing some settlers, but there is no convenience for water.

2 [At] The entrance to the harbor and point of an island [Nautilus Island] which it is necessary for ships to coast by upon entering, at which point a battery will be very necessary, with three cannons.

3 A strand [The Middle Ground] which is exposed at half tide.

4 Another strand [Trott's Ledge] which only appears at dead low tide.

5 Yet another strand [Negro Island Rocks] at the entrance of the little river [Bagaduce River].

6 A meadow less than a quarter of a league long, between the two coves [Wadsworth Cove and Hatch Cove], along which the grounds are very good for settlement. There are also plenty of oaks.

7 A flat land, where there are plenty of oaks quite easy to harvest, which forms the mouth of the Little Branch River [Orland River] along the banks of which one can place several settlers. There are also plenty of oaks and some good wood. One could carry on a major fishery there for bass, alewives, sardines, and herring, and there are anchorages for ships.

8 Oak Point [Bucksport], which is not commanded by any place, where one could build a fort to guard the river passage. The land there is good. There are plenty of oaks and beech trees both on the right and on the left. There are protected areas for boats, and these are nothing but meadow.

9 An Indian fort [Eddington] at the head of the great rapids [Veazie Falls] in the vicinity of which the lands are very good, and there is very fine wood for all sorts of uses.

10 Saquaische [Sunkhaze, Milford], which is an Indian fort, where again there is very good land and fine wood.

11 Madahamcouit [Mattawamkeag], a major Indian fort which they hold to be about half way to Quebec. Here the lands are also very good, and and there are the finest oaks in the greatest quantity in the world, and great fishing for eels and all sorts of fish.

12 A small river [Seboeis River?] which communicates with that of the St John by means of a portage.

13 Another river [West Branch, Penobscot River] which takes it origin from the Lake of Chaudiere Falls, which is the direct line for traveling to Quebec.

14 A large mountain [White Cap Mountain?] where at night something appears of such brilliance that one can see it from very far away. The Indians have told me that there was silver, like that which we serve ourselves with, but I have never been able to have any of it from them as I have little to promise them [in return]. They say that the places where it is found, is [sic] nearly inaccessible. They brought me a kind of crystal which I am sending along.

15 The entrance [Pushaw Stream] of a lake [Pushaw Lake] via which one can go into the Kennebec River. There is no wood along there but oak . The lands there are very flat and good, but subject to flooding.

16 A point [Eddington Bend] where the lands are very good, which is at the head of the great rapid, which one avoids by passing on the left through a small channel.

17 The house of Quebiscuit [Kenduskeag, Bangor] which the English started, which I have put a stop to and where I always have some men to prevent the English from coming into the river. There is in the surrounding area very good land, scarcely any other wood but oak. There is good fishing for salmon, eels and sardines and all other kinds of fish. There are also some waterfalls suitable for sawmills.

18 A great cove [Marsh Bay] where there is a very good meadow where there is no uninhabitable place. Here also [Frankfort] is room for establishing board mills and plenty of fir trees for that use and for masts and spars.

19 Hazel Nut Island [Sears Island], which is nearly cleared, and where one could place a few settlers.

20 Isle Dieu [Islesboro], where there is plenty of good land, shellfish, and chicadins [var. of chicabins, Micmac groundnuts] to help the settlers subsist.

21 A passage [Passagassawakeag River, Belfast Harbor] or

oniguin [*unigan* = portage in Abenaki] for going to the Kennebec. To the right and left the lands are very good.

22 A large cove [Rockland?] on the banks of which there is very fine material for all kinds of ships.

23 Goat Cape [Owl's Head].

24 Entrance to the St George River which belongs to the king, where there ought to be placed some settlers who will fish for cod conveniently. A fort there would surely be necessary, being the post closest to the English.

25 The house of John Brown [New Harbor], which marks the limit of the lands of his majesty with those of New England.

26 The house and habitation of Pamcuit [Pemaquid] which might consist of twelve or fifteen very isolated houses.

27 The entrance of the Kennebec River. The habitation might consist of 25 or 30 houses also very far apart from each other. The settlers do a great business in planks and cod and lots of trout.

28 The Pescadona [Piscataqua] River where the same business is carried on by the settlers as in that of the Kennebec.

29 The Comitou [Merrimack/Contoocook?] River, at the mouth of which is a large settlement of which the settlers only live on the revenue from their lands and their livestock.

30 The Isles of Shoals which is the place where the largest fishing business in all New England is carried on.

31 Monhegan Island— where there is still a great cod fishery carried on by the settlers, but who are not as numerous as in the other place——where it has always been alleged, that it belongs to the king; however the matter has not at all been decided up to this point.

32 Metinic Island, where the codfishing is done for the provisioning of Pentagoet.

33 Isle of Foxes [The Fox Islands, North Haven and Vinalhaven], where there is very good land for settlement by fishermen. There is also a very good harbor for ships.

34 Isle au Haut.

35 The Island [Little Deer Isle] and [Indian] fort of Larchimagam [Eggemoggin, Byard Point?] where the lands are very good and where there are plenty of oak trees and meadows which do not flood.

36 The safest channel [Isle au Haut Bay] for entering Isle au Haut, and the Seal Islands where one could set up a fishery if it were not ruined by the Indians.

37 The Foundry Islands [North and South Deer Isle].

38 The Pleasure Isles [Swans Island] where one could moor ships and build a large cod fishery.

39 Mount Desert Island.

40 The southern entrance of the channel leading into the great Pentagoet [Penobscot] River [east end of Eggemoggin Reach].

41 A small river [Benjamin River] where there is plenty of meadow, and good land which one could settle.

42 A passage [Orcuff Harbor] for running up the route to the place where one carries the canoe [across to the Smith's Cove and Castine Harbor] and where the lands are very good.

43 Mad Cape [Cap enragé = Cape Rosier].

44 A falls [Goose Falls], where one could build two or three mills, which, being sea water, would mill winter and summer.

45 A small harbor [White's Head Cove] for placing all kinds of boats in security and lying them up for the winter [the same as today].

46 A flat land [Wasson Cove?] where there is plenty of meadow and land for settling.

47 The Houestotagois [Westotagwak or Union] River where there is very good land, fine oak wood, plenty of shellfish and lots of fish.

48 Damate [Damack or Machias] River, where there is very good land at the mouth and fine wood for all sorts of uses.

49 A lake [Chiputneticook] which communicates with the Ste. Croix [River] and that of the Etchemins [Monument Brook], where again there is very good land and oaks in the mouth.

50 The St John River.

51 A little river which communicates with that of Pentagoet [Penobscot] via some portage.

52 The beginning of the course of the St John River, which also takes its origin at the lake of Chaudiere Falls, as well as that of the Pentagoet [Penobscot] and Kennebec.

53 Chaudiere Falls.

54 Quebec.

55 The Cap [de la Madeleine] settlement.

56 The Settlement of Three Rivers.

57 The fort of the Richelieu settlement; the lake and islands of St Peter.

58 The fort and islands of the assumption.

59 The fort and Lake St Louis.

60 Fort Ste. Thérèse [near Montreal].

61 Fort St Jean.

62 The entrance of the great lake Champlain.

63 Fort Ste Anne.

64 A river which leads to Montreal [Rivière des Prairies].

66 [sic] Rapids which make the separation between Lake Champlain and that of St Sacrement [St Francis].

67 The lake of Saint Sacrement [St Francis] which goes sixty leagues near to the Iroquois.

68 A large lake in the lands [Sebago Lake].

69 A river full of rapids which enters into that of Piscataqua.

70 A channel for entering the Pescadona [Piscataqua; should read "Pentagoet"] River from the southwest coast.

71 Another which is only safe for canoes because there is

plenty of strand which does not become exposed.

72 Yet another channel which is only safe for small boats, not having deep water there.

73 A point [Johnson's Point?] on the small river [Bagaduce] where there are plenty of firs for masts, very good land for settling, plenty of eels, and every kind of fish.

English translation by Alaric Faulkner.

Public Archives of Canada, Ottawa, Portfolio 128, Pièce 30, C11D, Microfilm reel F-168, pp. 11-14. An imperfect transcription of the French appears in *Documentary History of the State of Maine*, vol. 4, 1899, pp. 425-430.

APPENDIX C

Excavation and Laboratory Procedures

Excavation at Pentagoet followed the schedule shown in Table C.1. Over four field seasons from 1981 to 1984, the team excavated approximately 225 m³ of material from a 281 m² area. Except for the removal of recent sterile fill, all digging was done by trowel, and backdirt was sifted through 1/4 in. (6.4 mm) hardware cloth. Some 69 m², about 25% of the excavation, was devoted to test trenching while the remaining 75% of the site, 212 m², was exposed horizontally. Where necessary in broad exposures, excavation was conducted in 2 m by 2 m units leaving temporary balks 50 cm wide between them. These balks provided additional records of stratigraphy, and were removed after profiling. Excavation of areal exposures halted at the best preserved of Pentagoet's occupation surfaces, leaving large areas of pre-Pentagoet deposits untouched.

TABLE C.1
Pentagoet: Summary of Excavation Progress, 1981-1984

	1981	1982	1983	1984	All Seasons
Season length					
Dates	5/24–7/3	5/24–7/24	6/6–8/6	6/17–8/4	
Weeks in the field	6	9	9	7	31
Crew size					
Staff	1	4	3	3	11
Excavators	4	8	8	9	29
Total	5	12	11	12	40
Labor (person-weeks)	30	108	99	84	321
Test trenching (m²)	20	12	10	27	69
Areal exposure (m²)	0	76	97	39	212
Total area exposed (m²)	20	88	107	66	281
Productivity (m² per person-week)	0.67	0.81	1.08	0.79	0.88

Recording

Alaric Faulkner and a team of student surveyors mapped the site in 25 cm contour intervals using a plane table, an alidade, and a transit. Here, as in all subsequent recording, linear measurements were taken in the metric system. Distances were chained, rather than read optically by stadia, and elevations were keyed to sea level. Absolute elevations were established for subdatum points by transit from a field measurement of low tide on May 27, 1981, 11:05 A.M. E.D.T. These elevations served subsequently for aligning stratigraphic profiles as well as for establishing contours.

Excavation units were laid out with a transit on a one meter grid. This was keyed to a baseline offset 1 m west of the main foundation of the Catholic church, and running parallel to it. The northwest corner of the foundation was designated N100 E101, so that excavation would always proceed in positive coordinates within the northeast quadrant of the grid. Major sub-datum points were established by closed traverse survey at N105 E100, and N105 E118, and were marked crosses chiseled into the cement sidewalk and painted blue. Other principal points in the closed survey were placed at N78 E100, N78 E118, N58 E100, and N58 E118 and were marked with oak stakes.

Each one meter square was named for its southwest coordinate. In most cases, the horizontal location of each artifact was established by the coordinates of the pit in which it was found; when greater resolution was necessary, the coordinates were calculated to the nearest centimeter. Because the surface of the site formed a nearly uniform plane, the elevation for each artifact was measured as depth below surface, rather than as absolute elevations. The highest corner of each pit was considered to be the "surface."

Excavation was done by natural stratigraphy rather than by arbitrary levels, and strata were identified by Roman numerals. For most of the site, the following relationships held: I = sod, II = 19th- and 20th-century fill, III = slate rubble, and IV = 17th-century floors. Letters identified masonry walls, and separate episodes of construction in the same area were distinguished by Arabic suffixes, e.g. walls K1, and K2. Similarly, Arabic numerals were used to label features in the order in which they were exposed.

Each 17th-century artifact, fragmentary or complete, was recorded separately, except when several mending fragments of the same artifact were found in the same vertical and horizontal context, in which case they were inventoried together. Bag lots were used only for artifacts found in 19th and 20th-century overburden, miscellaneous "non-diagnostic" items, and samples of charcoal, daub, organic midden, and similar bulk materials. Like artifacts, these various bags were given catalog numbers and standard provenience data.

Some 12,221 entries have been recorded in the artifact catalog, and a summary of the assemblage by raw material appears in Table C.2. In order of frequency, these entries include metals (wrought and cast iron, copper, brass and lead), ceramics, clay tobacco pipes, lithics (gunflints and aboriginal chipping debris), glass, bone, and various organic materials. In order to manage this large data base, the artifact catalog was transferred to an Apple][+™ computer and manipulated with a hierarchical filing system designed using The General Manager™. The artifact entries were sorted by raw material, description, and provenience, thus generating various sub-lists. This information was particularly helpful in plotting distributions of particular artifact groups, noting cross-mends between artifact fragments, and in assessing the extent of secondary disturbance of deposits.

TABLE C.2
Summary of Fort Pentagoet Artifact Catalog Entries

Material	Description	Count	Percentage
Metals			
Wrought iron	Hand wrought nails and spikes	4228	34.60%
	Tools, fittings, fastenings, etc.	1081	8.85%
Cast iron	Cannon balls, spike shot, etc.	33	0.27%
Copper & brass	Kettle parts and derived items	308	2.52%
Lead	Musket balls, sprue, etc.	177	1.45%
Ceramics	Aboriginal Pottery	38	0.31%
	European ceramics, largely French earthenwares	2064	16.89%
Tobacco Pipes	Red clay (local manufacture)	110	0.90%
	White clay (imported Dutch and English)	1963	16.06%
Lithics	Aboriginal (felsite chipping debris)	452	3.70%
	European (flint chipping debris and gunflints)	363	2.97%
Glass	Bottles: case, wine, pharmaceutical, etc.	652	5.33%
	Tableware, drinking glasses	18	0.15%
	Window glass	71	0.58%
	Beads	19	0.16%
Organic/Other	Bone, wood, charcoal, textiles, misc. samples	971	7.95%
Totals*		12458	101.94%

*A few of the 12221 catalog entries are composites, listed under more than one category.

Some of the key records of the site are listed below:

Base map. This is a contour map of the site in 25 cm intervals originally drawn at a scale of 1:100. It shows all standing structures, datum points and the limit of archaeological excavation, as well as the major architectural features of the fort which have been excavated.

Ground penetrating radar scans. These consist of two sets of data recording sub-surface features at the site, the first taken in the fall of 1981 and an improved version taken in the spring of 1982. The transects were laid out at two meter intervals, and run both along and across the site.

Field maps. These include both structural plans and artifact maps drawn for each excavation unit. Plans of all structural features, such as walls, hearths, charred floor boards, cobblestone paving etc., were drawn rock by rock and board by board at a scale of 1:10, and later were assembled to create detailed composite maps of the entire excavation. Major artifact finds were mapped separately, with special attention given to specimens found on occupation floors.

Stratigraphic profiles. These are vertical cross sections depicting individual stratigraphic units in the site. Soil descriptions were taken from the Munsell Soil Color Chart and include not only color, but texture, consistence properties, structure, visible contents, and boundary form of each unit.

Journals. The day-to-day log books of the excavation record excavation progress, and include the names of the individual excavators together with their daily observations. For the sake of consistency, a single student assumed the task of making these entries. The initial interpretations given are of varying reliability, and should not be used to second guess the current analyses.

Artifact field catalog. This is an inventory of each artifact and sample bag. Artifacts are labeled sequentially in the order recovered, beginning at "1." Information includes a description by raw material and form, a notation of its completeness, the number of pieces recovered, the coordinates of the

1 m² pit, the stratum or feature number, the depth below surface in centimeters, any association with structures or features, and the depositional context—rubble, occupation floor, construction debris, etc.

Computer-generated artifact lists. These are corrected versions of the field catalog in which the identification of artifacts have been verified and standardized. For analytical purposes, various sublists have been generated for each raw material category. These lists occur in versions sorted by description and by area, as well as by catalog number.

Artifacts. The 12,221 cataloged entries represent many more whole and fragmentary items of various materials. These include metal, pipe clay, ceramic, flint, felsite, glass, bone, shell, and textile.

Conservation

Particularly numerous and informative at Pentagoet were the metal artifacts. With the exception of hand forged nails of which a large sample was treated, all metal specimens showing any diagnostic potential were thoroughly cleaned and conserved. These included 651 iron and 179 copper items. Where permissible, the iron was cleaned by electrolytic reduction and shot blasting, and sealed in microcrystalline wax. Copper was cleaned in formic acid, neutralized, and then coated with a neutral lacquer. Lead objects were left untreated. Many of these specimens were manufactured or reworked at the site, and were of particular value in studying adaptations to the Acadian frontier.

A few other items required conservation as well. Samples of thatch were stabilized in vinylite resin, as were certain disintegrating textiles. Rope and wood samples were stabilized in Carbowax™.

Curation

All records are currently kept in the Historical Archaeology Laboratory, 31 Coburn Hall, University of Maine, Orono, Maine. All artifacts and sample bags, except those on loan for exhibit or analysis, are housed there as well.

APPENDIX D

Profile Descriptions

Sections are divided into shorter spans, labeled similarly on both the profile drawings and the descriptions below. The inferred significance of each sediment is given at the left followed by a stratum designation and a detailed description. The format, the properties measured, and the scaling of these properties follow conventions accepted internationally by soil scientists, and has been slightly modified for archaeological purposes. In order, the properties measured are: color, texture, consistence, structure, contents, and boundary form. Colors are described with reference to the Munsell Soil Color Chart, published by Munsell Color of Baltimore, Maryland. All colors and consistence properties taken on moist soil. In general, "contents" includes artifacts actually recorded in the profile, and does not attempt to represent the full range of artifacts found in excavation. Strata in different spans which bear the same designation generally correspond to each other, although they may not be identical; strata with different subscripts, however, may have significant differences. Occasional reversals in the logical sequence of stratum post-fixes result from the order in which strata were discovered.

East-West Trench

N58 E117–115 Fill Outside East Curtain (Wall L2)

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to II.
19th–20th c. fill	II	10YR3/2 very dark grayish brown sandy loam; non-sticky, non-plastic; weak crumb structure; contains clam shell and charcoal, 19th-century materials, and redeposited 17th-century French ceramics; abrupt, smooth boundary to XXXIII.
Builder's trench	Fea. 22	10YR3/2 very dark grayish brown sandy loam and shell midden; non-sticky, non plastic; structureless; contains clam shell, hand-forged nails and charcoal flecks, and is the only stratum in this sequence to contain slate fragments; very abrupt, intrusive boundary through XXXIII, XXXVII and XXXIV.
Earthworks		
Banded fill	XXXIII	10YR4/3 brown to dark brown coarse sandy loam with several large pebbles; non-sticky, non plastic; structureless; contains numerous thin clam shell lenses, scattered shell, charcoal, roots, worm hole mottling, aboriginal chipping debris and ceramics, 17th-century French ceramics; large cobbles at erosional contact with XXXVII.
Sand lens	XXXVIIa	10YR5/4 yellowish brown fine sand lens above XXXVII; non-sticky, non plastic; structureless.
Shell midden	XXXIV	10YR3/1 very dark gray fine sand and shell midden; non-sticky, non plastic; structureless; dense clam shell accumulation containing occasional charcoal fragments and organic matter, possibly redeposited; abrupt sloping boundary to XXXVII.

Fill	XXXVII	10YR4/4 dark yellowish brown fine sand with frequent 10YR2/1 black mottles; non-sticky, non plastic; structureless; contains numerous pebbles and cobbles and open rodent burrows, as well as North Devon baluster jar fragments, and some aboriginal chipping debris; very abrupt sloping boundary to XXXVIII.
Gravel, (drainage?)	XXXVIII	2.5Y6/2 light brownish gray coarse sandy gravel, loose, very well washed and poorly sorted; non-sticky, non-plastic, structureless; contains a small aboriginal biface, but no organic matter, shell, or slate; very abrupt, smooth, sloping boundary to XXXV.
Pre-Pentagoet surface?	XXXV	10YR2/1 black medium sandy loam high in organic matter, possibly a leachate from a shell midden which has been removed; non-sticky, non plastic; structureless; contains a few cobbles and pebbles, but no slate or shell; a thin lens of this surface continues under XXXVIII very abrupt sloping boundary to XXXVI.
Marine sediments?	XXXVI	2.5Y4/4 light olive brown coarse sandy loam; non-sticky, non-plastic, structureless; contains numerous pebbles and cobbles and frequent isolated bits of clam shell in a nearly homogeneous mixture but also contains aboriginal pottery and a small side-notched projectile point; abrupt sloping boundary to Vb.
Shell lens	XXXIX	10YR3/3 dark brown coarse sand; non-sticky, non-plastic; structureless; contains dense shell midden with charcoal flecks; very abrupt, smooth boundary above and below.
Sterile marine sands	Vb	5Y4/3 olive sandy clay loam; non-sticky, slightly plastic; massive; very dense aquifer with some iron oxide mottles at top, at the water table; extends underneath curtain wall.

N58 E115–108 Workshop (Structure 2.3)

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to II.
19th & 20th c. fill	II	2.5Y3/2 very dark grayish brown silt loam; non sticky, non-plastic; weak fine crumb structure; contains scattered shell fragments, slate fragments, cut nails and redeposited 17th-century artifacts; clear irregular boundary to III.
18th-century rubble	IIIa	10YR3/2 very dark grayish brown sandy loam; non-sticky, slightly plastic; structureless; contains redeposited, isolated slate pieces without mud mortar, and few artifacts; abrupt, smooth boundary to IV and Feature 2.
Barracks floor (Pent. III)	IV	10YR2/1 black charcoal layer, varying in thickness and discontinuous, with 10R4/6 red burned daub immediately above; this floor and demolition layer is best preserved under wall K1, an 18th-century construction of dry rubble masonry; very abrupt smooth boundary to IVb.
Workshop floor (Pent. I)	IVb	10YR4/4 dark yellowish brown sand; non-sticky, non-plastic, structureless; with intense mottling of 2.5Y5/4 light olive brown clay and 10YR3/3 dark brown worm trails; contains occasional bits of 10R4/6 red burned daub, especially at upper boundary with IV and beside wall K2; this was apparently the original sand and clay floor which burned in the first demolition of the structure at the end of Pentagoet I; abrupt, wavy boundary to IVc shell midden. Note that although this stratum appears to continue above the footing K2, this is apparently because of a doorway at this location. In the opposite profile of the trench, this sediment abuts K2, and does not continue over it.

Aboriginal midden	IVc	10YR8/1 white, midden of whole clam shells with no organic or dirt matrix; contains aboriginal chipping debris and is probably a primary aboriginal deposit; very abrupt, undulating boundary to IVd.
Sandy loam	IVd	2.5Y4/2 dark grayish brown sandy loam; non-sticky, slightly plastic; structureless; contains isolated shell fragments; gradual, smooth boundary to V.
Marine sediment	V	5Y5/3 olive medium to coarse sand; non-sticky, slightly plastic; massive; sterile.

N58 E108–102 Smithy (Structure 2.2)

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to II.
19th & 20th c. fill	II	2.5Y3/2 very dark grayish brown silt loam; non sticky, non-plastic; weak fine crumb structure; contains scattered shell fragments, slate fragments, cut nails and redeposited 17th-century artifacts; clear irregular boundary to III.
Loose slate rubble	III	10YR3/2 very dark grayish brown sandy loam; non-sticky, slightly plastic; structureless; contains loose slate wall rubble without mud mortar; abrupt, smooth boundary to IV.
Barracks floor (Pent. III)	IV	10YR2/1 black thin, discontinuous charcoal layer often covered with 10R4/6 red burned daub; very abrupt smooth boundary to IVb and Feature 2.
Slack pit	Fea. 2	5Y4/3 olive sandy clay loam fill with numerous 5Y5/3 olive mottles; slightly sticky, plastic; structureless; contains numerous fragments of iron scrap in a fill of charcoal and charred wood with a few fragments of coal and slag, and was probably the location of a subterranean slack tub beside the forge and anvil; very abrupt intrusive boundary into IVc, IVd, and V.
Smithy floor (Pent. I)	IVb	10YR4/3 brown to dark brown coarse sand loam grading to 10YR3/1 very dark grayish brown silt loam mottled with 10YR2/1 black charcoal and 7.5YR5/6 strong brown iron deposits; non-sticky, slightly plastic; structureless; contains abundant scrap iron, slag, coal, charcoal, and 10R4/6 red burned daub; abrupt, wavy boundary to IVc shell midden, gradual boundary to Feature 2.
Aboriginal midden	IVc	10YR8/1 white, midden of whole clam shells with no organic or soil matrix or with a matrix of 10YR3/2 very dark grayish brown coarse sandy loam; contains aboriginal chipping debris and is probably a primary prehistoric deposit; very abrupt, undulating boundary to IVd; gradual boundary to IVe.
Sandy loam	IVd	2.5Y4/2 dark grayish brown sandy loam with occasional lenses of 10YR2/1 black charcoal and humus; non-sticky, slightly plastic; structureless; contains isolated shell fragments; gradual, smooth boundary to V.
Aboriginal midden	IVe	10YR8/1 white, midden of whole clam shells in a matrix of 10YR3/2 very dark grayish brown coarse sandy loam; contains aboriginal chipping debris and is probably a primary prehistoric deposit essentially similar to IVc; very abrupt, undulating boundary to V.
Marine sediment	V	5Y5/3 olive medium to coarse sand; non-sticky, slightly plastic; massive; sterile.

N58 E102–98 Officers' Quarters (Structure 2.1)

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to II.
19th & 20th c. fill	II	10YR3/2 very dark grayish brown loam; non sticky, slightly plastic; structureless; contains scattered slate fragments and modern clear bottle glass; abrupt, irregular boundary to III.
Chimney rubble	III	10YR3/2 very dark grayish brown sandy loam; non-sticky, non-plastic; weak fine angular blocky structure; toppled chimney rubble with mud mortar, on edge, but otherwise intact; abrupt, smooth boundary to IV.
Wooden floor	IV	10YR2/1 black charred wooden floor covered with 10R4/6 red burned daub and charcoal; very abrupt smooth boundary to IVb.
Hearth underlayment		5Y5/3 olive, clay loam; very sticky, plastic; structureless; contains small slate fragments, occasional charcoal flecks, and on the bottom margin frequent fragments of 10R4/6 red burned daub, suggesting replacement of earlier hearth; abrupt to clear, smooth boundary to Feature 8 and IVa.
Scaffold support		
Post hole fill	Fea. 8	Shell midden mixture of IVd and IVa; contains pebbles occasional flecks of 10R4/6 red burned daub; very abrupt intrusive boundary into IVd.
Post mold	Fea. 8	5YR 3/4 dark reddish brown silt loam with 2.5YR red burned daub; plastic, slightly sticky; structureless; contains charcoal, ash, and occasional clay fragments, and was probably a support post for re-construction of the chimney prior to the completion of the later slate hearth (appears below hearth in north-south section only).
Pre-construction fill	IVb	2.5Y3/2 very dark grayish brown sandy loam; slightly sticky, slightly plastic; structureless; mottled fill contains scattered shell fragments and charcoal; very abrupt, smooth boundary to IVa.
Aboriginal midden	IVa	10YR3/1 very dark gray sandy loam and dense clam shell midden; non-sticky, slightly plastic; structureless; contains much organic matter, charcoal and ash lenses, and is probably an intact prehistoric shell midden; very abrupt, smooth boundary to IVd.
Sand	IVd	10YR4/6 dark yellowish brown medium sand; non-sticky, non-plastic; structureless; apparently sterile; gradual, smooth boundary to V.
Marine sediment	V	5Y4/3 olive coarse sandy loam; non-sticky, slightly plastic; massive; sterile.

N58 E98–E96 Alley Below Rampart Stairway

Sod	I	10YR 4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to II.
Fill	II	10YR 3/2 very dark grayish brown sandy loam; slightly sticky, plastic; structureless; contains scattered slate rubble; clear irregular boundary to III.
Slate rubble	III	5Y4/2 olive gray clay loam; slightly sticky, plastic; weak fine angular blocky structure; contains dense slate wall or chimney rubble and mud mortar from Structure 2; clear irregular boundary to IV.

Occupation level	IV	10YR4/2 dark grayish brown sandy loam; non-sticky, slightly plastic; weak fine crumb structure; contains brass pins, iron fragments, and much charcoal, particularly at the contacts with stratum III and the upper surface of a gravel lens ("paving level"); abrupt, smooth boundary to gravel lens and shell lens.
Gravel lens		10YR4/3 brown to dark brown coarse sandy clay loam; non-sticky, slightly plastic; massive; lens within IV at the level of the cobblestone parade (in an area where a 1671 description indicates a stairway for ascending the ramparts).
Shell lens		10YR8/2 white dense clam shell midden (*Mya arenaria)*; loose deposit with no organic matter; very abrupt, wavy boundary to IVb.
Pre-construction fill	IVb	10YR5/4 yellowish brown sandy clay loam, with 10YR4/3 brown to dark brown mottles; non-sticky, slightly plastic; massive; probably a redeposited mixture of aboriginal and early 17th-century European fill, it contains scattered shell fragments and charcoal flecks; clear, irregular boundary to IVa and V.
Aboriginal midden	IVa	10YR2/1 black sandy loam and dense clam shell midden; non-sticky, slightly plastic; structureless; contains aboriginal ceramics and lithics, much organic matter and charcoal fragments and is probably an intact aboriginal shell midden; very abrupt, smooth boundary to V.
Marine sediment	V	2.5Y4/4 olive brown medium sand; non-sticky, slightly plastic; massive; sterile.

N58 E96–92 Cellar Kitchen of Dwelling (Structure 1.1)

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to Feature 3 and II.
Builder's trench/tile drain	Fea. 3	5Y4/2 olive gray clay loam; slightly sticky, plastic; weak crumb structure (very similar to the mud mortar in III); contains 17th- and 19th-century ceramics and a 1919 Lincoln penny; in the north wall (N59 E94–95), an extensive and active woodchuck burrow, containing a nest of oak leaves and cellophane, pervades the loose rubble of this feature and the upper part of stratum III; clear intrusive boundary into II, III, and IV.
Fill	II	10YR3/2 very dark grayish brown sandy loam; non-sticky, slightly plastic; structureless; contains many shell fragment, especially near the western wall, and scattered slate rubble; clear irregular boundary to III.
Slate rubble	III	5Y4/2 olive gray clay loam (mud mortar); slightly sticky, plastic; weak crumb structure; contains dense slate wall rubble and charred beam fragments especially near the western wall; abrupt, smooth boundary to IV.
Charcoal & burned daub	IV	5YR4/4 reddish brown and 10YR2/1 black clay loam made up of 10R4/6 red burned daub, charcoal, and mud mortar washed out of the wall rubble, slightly sticky, plastic; weak crumb structure; contains numerous hand-forged nails, charred beam sections, and scattered slate fragments from the demolition of the mud-plastered, timber-framed interior; clear irregular boundary to IV_1.
Floors and lenses in IV	IV_1	5Y3/1 dark gray clay loam; sticky, plastic; structureless; contains charcoal fragments and 17th-century artifacts; abrupt, smooth boundary to IV_2.
	IV_2	5Y4/2 olive gray sandy loam; non sticky, non-plastic; structureless; contains charcoal, bone and 17th-century artifacts; abrupt, smooth boundary to IV_3.

	IV$_3$	5Y4/2 olive gray clay loam with 5Y5/6 olive mottles; very sticky, very plastic; massive; contains bones and miscellaneous iron fragments; abrupt, smooth boundary to IV$_4$.
	IV$_4$	5Y2.5/2 black medium beach sand; non sticky, non-plastic; structureless; contains some bone and hand-forged nails; very abrupt, smooth boundary to V.
Marine sediment	V	5Y4/2 olive gray sandy clay loam with 10YR4/6 dark yellowish brown laminar mottles; non-sticky, plastic; massive; sterile.

N58 E92-91 Outside West Curtain (Wall A)

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to II.
Earthworks fill?	XI	10YR4/2 dark grayish brown with 10YR4/4 dark yellowish brown and 10YR2/1 black mottles, fine sandy loam; non-sticky, non-plastic, structureless; contains little or no cultural material; possibly mud and sand spoil from construction or from pre-existing earthworks; only one piece of slate noted; very abrupt, wavy boundary to shell midden.
Redeposited shell	XIc	10YR3/1 very dark gray fine sandy loam and shell midden; non-sticky, non-plastic, structureless; contains dense clam shell deposit and 17th-century North Devon baluster jar fragments.
Builder's trench, curtain	Fea. 1	10YR4/2 dark grayish brown loamy sand; non-sticky, non-plastic, structureless; contains scattered bits of shell and charcoal—apparently a homogeneous mixture of XI and XIc.

N61 E92-87 West Earthworks and Palisade Line

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to IIa.
McVicar fill, c. 1955	IIa	2.5Y4/4 olive brown gravelly sand; non-sticky, non plastic; structureless; sterile except for occasional rifle shell casings (apparently from target practice at the gravel pit source); abrupt, smooth boundary to X.
Robber's trench	Fea. 12	10YR3/2 very dark grayish brown loamy sand; non-sticky, non-plastic; structureless; homogeneous dense redeposited clam shell midden with cobbles in the bottom of the pit; containing 19th-century export porcelain mixed with aboriginal and 17th c. European materials, very abrupt, intrusive boundary into XI, IVd, and Feature 19.
19th-20th c. fill	II	10YR3/2 very dark grayish brown sandy loam; non-sticky, non-plastic; structureless; contains clam and mussel shell and 19th-century artifacts; abrupt, smooth boundary to XIa.

Mixed prehistoric and early 17th-century fill (Penobscot post, 1629-1635)

	XIa	10YR4/3 brown to dark brown sandy loam; non-sticky, non-plastic; structureless; with numerous 10YR3/2 very dark grayish brown to 10YR4/4 dark yellowish brown mottles and lenses; contains sparse fragmentary clam shell, aboriginal ceramics and chipping debris, and early 17th-century materials including North Devon baluster jar fragments.

	XIb	Redeposited clam shell lens in XI.
	XIc	10YR3/2 very dark grayish brown sandy loam with thick 7.5YR5/6 strong brown sand lens and thick bands of dense, fragmentary clam shell; non-sticky, non-plastic; structureless; contains aboriginal materials mixed with hand-forged nails and early 17th-century materials including North Devon baluster jar fragments; very abrupt, smooth boundary to XId.
Aboriginal hearth	Fea. 16	10YR2/1 black charcoal lens above coarse, well washed beach sand and fire-cracked rock; charcoal from the hearth, which appears only in the N62 profile, produced a radiocarbon date of 410 ± 70 years BP (1470–1610 A.D.); abrupt, intrusive boundary into XId, XIe, and IVd.
Aboriginal midden	XId	10YR8/2 white dense whole clam shell midden (*Mya arenaria*); loose deposit with 10YR2/1 black organic matter; non-sticky, plastic; structureless; contains aboriginal chipping debris and ceramics, and fire-cracked rock; abrupt, smooth boundary to XIe.
Buried A1 & E horizons	XIe	10YR2/1 black sandy silt loam with high organic matter (A1 leachate from shell midden); slightly sticky, plastic; structureless; located immediately above 10YR6/2 light brownish gray sand (E horizon), non-sticky, non-plastic; structureless; effectively sterile; abrupt, wavy boundary to IVd.
Tree throw?	Fea. 19	Mottled mixture of XId, XIe, and IVd; abrupt intrusive boundary into IVd.
B2ir horizon	IVd	7.5YR4/4 brown to dark brown gravelly sand; non-sticky, non-plastic; structureless; apparently sterile; gradual, smooth boundary to V.

North-South Trench

N76–74 E107 Fill within Collins Excavation of Magazine (Structure 3)

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to IIa.
McVicar fill, c. 1955	IIa	10YR4/4 dark yellowish brown coarse sandy gravel; non-sticky, non plastic, loose; structureless; contains 1940 nickel and other 20th-century artifacts and some colonial material at contact with III; abrupt, smooth boundary to III.
Backfill c.1921	IIb	10YR4/2 dark grayish brown sandy loam; non-sticky, slightly plastic; weak fine crumb structure; contains rubble from remodelling church c. 1921, including whole bricks, mortar, painted plaster, cut and wire nails, window glass, etc.; clear, sloping boundary to IIc and IId.
Plaster lens	IIc	2.5Y8/2 white grit tempered plaster (no horsehair) from church remodelling, c. 1921.
Collins excavation backfill 1892–c.1920	IId	10YR3/3 dark brown sandy loam; non-sticky, slightly plastic; structureless; contains whole clam shells, slate fragments, isolated paving cobbles, and various 18th-century materials including New England trailed slipware, Staffordshire combed slipware, white saltglazed stoneware, and a brass shoe buckle chape; clear, wavy boundary to IIe.
	IIe	2.5Y5/4 light olive brown coarse sandy loam with frequent 7.5YR4/6 strong brown mottles from worm activity; non-sticky, non-plastic; massive; sterile except for some slate fragments in opposite (E106) wall; possibly redeposited mix of III and V?

N72–61 E107 Cobble Paved Parade

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to IIa.
McVicar fill, c. 1955	IIa	10YR4/4 dark yellowish brown coarse sandy gravel; non-sticky, non plastic, loose; structureless; contains 1940 nickel and other 20th-century artifacts and some colonial material at contact with III; abrupt smooth boundary to III.
Backfill 1892–1921	IIb	10YR4/2 dark grayish brown sandy loam; non-sticky, slightly plastic; weak fine crumb structure; contains rubble from remodelling church c. 1921, including whole bricks, mortar, painted plaster, cut and wire nails, window glass, etc., decreasing in frequency towards the south; also contains 19th-century ceramics and glass mixed with earlier materials including slate fragments, green glazed ceramics, 7/64ths in. and 8/64ths in. bore tobacco pipes, clam shell, and bone; clear, smooth boundary to or IId, IV, or III (south end).
Collins excavation backfill 1892–c.1920	IId	10YR3/3 dark brown sandy loam; non-sticky, slightly plastic; structureless; contains whole clam shells, slate fragments, isolated paving cobbles, and various 18th-century materials including New England trailed slipware, Staffordshire combed slipware, white saltglazed stoneware, and a brass shoe buckle chape; clear, wavy boundary to IIe.
Well "repair" trench	Fea. 20	2.5Y3/2 very dark grayish brown silt loam; non sticky, non-plastic; weak fine crumb structure; contains scattered shell fragments, slate fragments,and numerous 19th-century materials including hard white ceramics, cut nails shoe parts, and 1892 liberty dime; clear, irregular, intrusive boundary to boundary to III, IV and V.
Slate rubble	III	2.5Y4/2 dark grayish brown clay loam; slightly sticky, plastic; weak fine angular blocky structure; mud mortar with toppled slate masonry (Wall E) and scattered slate rubble; very abrupt, smooth boundary to IV.
Cobble paving	IV	Cobble paving in matrix of 10YR4/2–3/2 very dark brown to very dark grayish brown sandy loam; non-sticky, slightly plastic; fine angular blocky structure; contains cobble paving with mid-18th-century English ceramics (Staffordshire combed slipwares, scratch blue and white saltglazed stonewares, etc.) and pipestems (4/64ths in. bore) on surface; also contains 17th-century materials (7/64ths in. and 8/64ths in. bore tobacco pipes, bartmann and Saintonge ceramics) in matrix between cobbles.
Marine sediments	V	10YR5/4 yellowish brown sandy clay loam with frequent 10YR6/6 brownish yellow and 5Y7/3 pale yellow mottles from worm activity; non-sticky, slightly plastic; massive; sterile marine sediments.

N61–58 E107 Smithy (Structure 2.2)

Sod	I	10YR4/3 brown to dark brown silt loam; slightly sticky, slightly plastic; weak, fine crumb structure; clear boundary to IIa.
McVicar fill, c. 1955	IIa	10YR4/4 dark yellowish brown coarse sandy gravel; non-sticky, non plastic, loose; structureless; contains 1940 nickel and other 20th-century artifacts and some colonial material at contact with III; abrupt, smooth boundary to III, gradual boundary to II.
19th & 20th c. fill	II	10YR4/2 dark grayish brown to 2.5Y3/2 very dark grayish brown silt loam; non-sticky, non-plastic; weak medium crumb structure; contains scattered shell fragments, slate fragments, and coal (from 17th-century forge); gradual, irregular boundary to III.

Loose slate rubble	III	10YR3/2 very dark grayish brown sandy loam; non-sticky, slightly plastic; structureless; contains loose slate wall rubble without mud mortar; abrupt, smooth boundary to IV.
Barracks floor (Pent. III)	IV	10YR2/1 black thin, discontinuous charcoal layer often covered with 10R4/6 red burned daub; very abrupt, smooth boundary to IVb.
Smithy floor (Pent. I)	IVb	10YR4/3 brown to dark brown coarse sand loam grading to 10YR3/1 very dark grayish brown silt loam, mottled with 10YR2/1 black charcoal and 7.5YR5/6 strong brown iron rust deposits; non-sticky, slightly plastic; structureless; contains abundant scrap iron, slag, coal, charcoal, and 10R4/6 red burned daub; abrupt, wavy boundary to IVc shell midden.
Aboriginal midden	IVc	10YR8/1 white, clam shell midden in a matrix of 10YR3/2 very dark grayish brown coarse sandy loam; contains aboriginal chipping debris and is probably a primary prehistoric deposit; very abrupt, undulating boundary to IVd.
Sandy loam	IVd	5Y4/3 olive to 7.5YR4/2 brown clay loam (similar to mud mortar used in wall construction) grading into 2.5Y4/2 dark grayish brown sandy loam; slightly sticky, plastic; structureless; contains isolated shell fragments; very abrupt, smooth boundary to IVe and gradual boundary to V.
Aboriginal midden	IVe	10YR8/1 white, midden of whole clam shells in a matrix of 10YR3/2 very dark grayish brown coarse sandy loam similar to IVc; contains aboriginal chipping debris and a few hand-forged nails (probably intrusive) and in spite of contamination is thought to be a primary prehistoric deposit; very abrupt, undulating boundary to V.
Marine sediment	V	5Y5/3 olive medium to coarse sand; non-sticky, slightly plastic; massive; sterile.

APPENDIX E

Clay Tobacco Pipe Typology

Listed below are all the clay pipe fragments which are considered to have diagnostic value. Because of the fragmentary nature of the data, separate typologies are given for bowl, heel and stem fragments. The range of pipestem bore diameters, measured in 64ths of an inch, is listed for each variety.

TABLE E.1
White Clay Tobacco Pipes

Part Type	Description	Bore(s)	No.
bowl			
I	large, bulbous belly bowl	8	11
	marked "PE"		1
Ia	large belly bowl, less bulbous	7,8	7
	marked "PE"		1
	marked "LE"	7	1
Ib	large belly bowl, slender	7	4
Ic	large, tall belly bowl, round heel	7	1
	marked "PE"	7,8	7
Id	large b-bowl, heel slants forward	8	1
II	small belly bowl	7	1
	marked w/ small flower?		1
IIa	minute belly bowl	6	2
IIb	small b-bowl, laterally bulbous		1
IIc	small b-bowl, bird heelmark		1
III	med. b-bowl, straight ventral side	7	1
IV	med. belly bowl, barrel-shaped	7,8	4
V	belly bowl w/ spur	6,7	9
VI	crusader-huntress molded b-bowl	7,8,9	39
VIa	crusader-huntress w/ shield		1
VII	Raleigh molded b-bowl, debased		5
VIIa	"Raleigh" b-bowl, refined		1
VIII	mulberry molded belly bowl		1
VIIIa	Tudor rose molded b-bowl		1
IX	heelless "export," funnel shape	7,8	18
	marked w/ Tudor rose	8	1
unid.	marked "LE" on bowl back		1
unid.	marked "WE IV" on bowl back	7	4
heel			
I	large, sub-round, plain	7,8	36
Ia	medium, sub-round, plain	7,8	11
Ib	large, round, plain	7	5
Ic	large, sub-round, marked "PE"		4
II	spur (see bowl 5)	5, 6, 7, 8	4
III	large, plain mushroomed	7,8	5
IV	heelless (see bowl 9)		
V	small, round, plain		
Vb	small star design?		1
Vc	marked "FL[O]WE[R HUNT]"		1
Vd	marked "EB"	7	1
Ve	unid mark	8	1
Vf	unid mark	5	1
VI	large spur		1
	misc. re-worked	7	2
stem			
I	simple dentate, rouletted	7	2
Ia	chain and dentate, rouletted	7	1
Ib	hachure, oval, and V, rouletted	7	6
Ic	diamond chain & dentate, roul.	7	2
Id	X-chain and dentate, rouletted	7	1
Ie	V-chain and dentate, rouletted	7	2
II	4-on-diamond fleurs-de-lis, stamp	7	1
III	collar of dots, molded	7	1
IV	fruit and vine, molded	7	3
IVa	crescent, line & dot, molded	7	1
V	separate fleurs-de-lis, molded	7	1
VI	baroque daisy motif, molded	7	2

TABLE E.2
Redware Tobacco Pipes

Part Type	Description	Bore(s)	No.
bowl			
Ia	large belly bowl	8	2
IXa	heelless "export," w/ dorsal bow	9	9
heel			
I	large, sub-round, plain	9	3
stem			
I	simple dentate rouletted	8	1

APPENDIX F

Ceramic Type Descriptions

The detailed descriptions given below cover the 17th-century ceramics recovered at Pentagoet, many of which are not well known either from archaeological sites in North America or from their country of origin. Also included are a few locally made earthenwares believed to be of 18th-century date, but which could easily be confused with the earlier materials. Paste colors are given their popular names followed by standard color designations and standard names taken from charts of the Munsell color system (Munsell Color Charts, Munsell Color, Baltimore, Maryland, 1975). Hardness is measured by simple tests adequate to detect gross differences in paste firing: a *soft* paste scratches with the fingernail, a *moderately hard* paste does not, but can be scratched easily with a steel knife blade, and a *hard* paste resists knife scratches.

Following these descriptions is a table which compares 17th-century ceramics from Pentagoet with those from Fort La Tour (Table F.1). Also included is a brief table of 18th-century vessel counts—ceramics which are associated with the post-Pentagoet Staples-Gray occupation (Table F.2). This subassemblage consists largely of white saltglazed and scratch blue stonewares, and Staffordshire slip decorated earthenwares. These are already familiar to most collectors and historical archaeologists, and, as they do not relate to the 17th-century occupations of the fort, they need not be described further. For additional information about these well-known wares consult Ivor Noel Hume, *Artifacts of Colonial America*, Knopf, (New York, 1970).

Buff Bodied and Pink Bodied Earthenwares

Green Glazed

GG1

Comments: This type designation was reserved for a certain bright green earthenware commonly found on 18th-century French sites in North America. This earthenware is produced by covering a pink body with a white slip, which in turn is covered with a copper-tinted lead-glaze. This corresponds to type L1 in the Barton typology at Louisbourg, and is thought to derive from the Saintonge region of France (see Kenneth J. Barton, "Coarse Earthenwares from the Fortress of Louisbourg," p. 10). After close examination, no such slip-ground green glazed ceramics were confirmed at Pentagoet.

GG2

Fabric color: buff (10YR8/3 very pale brown) to pink (7.5YR7/4 pink) depending on degree of oxidation.

Paste inclusions/properties: fine paste with occasional large grains of hematite; dense fabric; moderate hardness; porous.

Body sherd thickness: medium (3.5 mm to 5.5 mm).

Glaze/surface treatment: A copper glaze, pale to bright green characterizes this type. In most storage vessels, the glaze was applied only to the interior of the rim, the excess having puddled on the bottom (a characteristic of YG1 as well). The remainder of the vessel is unglazed, except for occasional drips or spatters. The glaze is often pitted and speckled with dense flecks of copper and iron pigment, indicating incomplete fusion, the result of low firing temperatures. Glazing, therefore, is purely functional rather than decorative, and probably serves to keep some form of cover from sticking to the pot.

Forms: hollow, including large and medium sized flat bottomed pots with single strap handles, and a large double handled pouring pot.

Function: food storage and preparation.

Pentagoet chronology: Primarily Pentagoet III (1670-1674) where large sections of several GG2 vessels have been found on the final occupation surface, but the ware also occurs in Pentagoet I (1635-1654).

Comments: A very common ware at Pentagoet occurring in forms which are late medieval in tradition, and surely from the Saintonge or nearby in southwest France.

GG2a

Fabric color: buff (10YR8/2 white to 10YR7/3 very pale brown).

Paste inclusions/properties: fine paste with occasional small hematite flecks; dense fabric, moderate hardness; porous.

Body sherd thickness: thin (3.0 mm to 5.0 mm) on small vessels, thick (7.0 mm to 8.0 mm) on a large jug neck.

Glaze/surface treatment: Vessel interiors are thoroughly covered with a brownish green (5Y5/4 olive) glaze effectively sealing the paste while exteriors are generally unglazed except for accidental drips and spatters. The glaze color may attributable primarily to iron and lead, with very little copper. Alternatively, the interior of these specimens may have been fired in a slightly reducing atmosphere.

Forms: hollow, often closed forms, including small pitchers, a large jug neck and base, and pot and jar bases.

Function: Food serving and storage.

Pentagoet chronology: Pentagoet I (1635-1654).

Comments: This ware differs from GG2 principally in the color and distribution of the glaze. Here the glaze waterproofs the entire inside of the vessel, without adding to its esthetic appeal. The gradation in green glaze between the two types appears as a continuum in normal lighting, but the differences show up rather strikingly on Verichrome or Ectachrome color film, in which GG4 appears brown, rather than green. In other respects this type appears to be quite similar to GG2, and probably has a common origin.

GG3

Fabric color: very light buff (10YR8/2 white).

Paste inclusions/properties: dense fabric with rare hematite flecks, porous.

Body sherd thickness: thin (3.0 mm to 5.5 mm) on most forms except for a large bowl which is medium (7.0 mm).

Glaze/surface treatment: A copper glaze, pale to strong green, is applied to the interior and at least the upper half of the exterior. Usually the glaze is smooth and homogeneous on the exterior, but often in jars and small pots the glaze may be pitted on the interior, showing flecks or splotches of incompletely fused iron or copper pigment. This is assumed to be the result of lower firing temperature on the interior.

Forms: hollow, including small pots and straight sided preserve jars, a large, shallow bowl with finger-impressed buttressing under the rim, and a pitcher.

Function: Food preparation, serving and storage.

Pentagoet chronology: Pentagoet III (1670-1674) and possibly Pentagoet I (1635-1654).

Comments: These bright green ceramics are similar to Barton's Type L2 at Louisbourg, frequently found on 18th-century sites in New France, and identified as deriving from Saintonge (see Kenneth J. Barton, "Coarse Earthenwares from the Fortress of Louisbourg," p. 16). Note that GG3 is considerably more refined than GG2.

GG3a

Comments: An earthenware essentially similar to GG3, but having a pitted glaze inside and out, with incompletely fused mineral components. Occurs on a decorative strap loop, one of a series of such loops which surrounded either the edge of a shallow bowl or the upper margin of a chafing dish. Both forms are known, and have been identified as products of Saintonge (see J. G. Hurst, "Sixteenth- and Seventeenth-Century Imported Pottery from the Saintonge", *Medieval Pottery from Excavations*, p. 246, Figure 9, no. 52).

GG3b

Fabric color: light buff (10YR 8/3 very pale brown).

Paste inclusions/properties: fine paste with occasional hematite flecks; dense fabric; moderate hardness; porous.

Body sherd thickness: thin (2.0 mm to 4.0 mm).

Glaze/surface treatment: This is a two-colored ceramic, apparently a variant of GG3. The interior glaze is clear and smooth, showing the fabric as yellow (2.5Y7/6 yellow to 2.5Y6/6 olive yellow), but with slightly more color saturation than the paler YG1. The exterior is glazed a homogeneous bright green, a copper pigment, as in GG3.

Forms: Small pot with everted rim and ribs or cordoning with low relief over the exterior surface.

Function: serving pot.

Pentagoet chronology: Pentagoet III (1670-1674).

Comments: This is probably a Saintonge product, a variant of GG3.

Yellow Glazed

YG1

Fabric color: buff (2.5Y8/2 white).

Paste inclusions/properties: Dense fabric with rare large grains and flecks of hematite; moderate hardness; porous.

Body sherd thickness: medium (4.0 mm to 5.5 mm).

Glaze/surface treatment: The glaze is very clear, but pitted with occasional iron oxide specks. Through it the paste appears light yellow (2.5Y7/4 pale yellow). Pits occur around the incompletely dissolved iron oxide glaze impurities, and give the surface a lemon peel effect Most significantly, this glaze is applied to inside rim and inside bottom only, leaving the rest of the interior and exterior unglazed except for occasional dips or spatters (a characteristic of GG2 as well). Glazing, therefore, is purely functional rather than decorative, but it does not serve to waterproof the entire interior of the vessel. Instead this probably provides a minimal non-stick cooking surface, keeping a lid from sticking to the rim, and food from cooking to the bottom of the pot.

Forms: hollow, predominantly double-handled round-bottomed cooking vessels, often heavily charred on outside. The loop handles of these cooking vessels are always round, or nearly so, in section, unlike GG2 strap handles.

A pouring lip from a large vessel and bases of small jars or pots are also represented. One rim fragment may represent a flat form such as a platter or charger; alter natively it may a pot lid.

Function: principally food preparation, especially boiling and simmering.

Pentagoet chronology: Pentagoet III (1670-1674). Large sections of several YG1 vessels have been found on this final occupation surface. Many plain, buff bodied earthenware sherds have also been found in this context, and most of them apparently belong to YG1 cooking vessels.

Comments: This is one of the most common of Pentagoet's earthenwares, occurring predominantly if not exclusively during the final French occupation of the fort. Redware versions of these cooking pots commonly appear on 18th-century French sites in New France.

Orange Glazed

OG1

Fabric color: orange (5YR7/6 reddish yellow) with (2.5YR5/8 red) hematite flecks; evidently produced in an oxidizing atmosphere.

Paste inclusions/properties: hematite flecks and large inclusions, occasional fine mica grains; moderately hard; porous.

Body sherd thickness: medium (4.0 mm to 5.5 mm)

Glaze/surface treatment: The glaze which occurs on the interior only is very clear, showing the paste color. Its rough, pitted surface presents an orange peel effect, and suggests a relatively low firing temperature.

Forms: hollow, represented by a strap handled storage vessel.

Function: food storage.

Pentagoet chronology: Pentagoet III (1670-1674)? Nearly all sherds have been deposited or re-deposited in the demolition fill over the PIII occupation, but have not been found on any occupation surface.

Comments: The origin of this ware is unknown, but a specimen of similar ware was put on display at the annual Council for Northeast Historical Archaeology held in Amherst, Massachusetts, October 1982. That specimen was attributed to Southampton, England, and dated to the middle of the 17th century. However, after consulting with John Allen, post-medieval ceramics expert at the Exeter Museum, the authors have been unable to confirm this identification.

Polychrome

PC1, Saintonge polychrome painted

Fabric color: buff (10YR7/2 light gray) to pink (5YR8/3 pink).

Paste inclusions/properties: fine grit temper with frequent 5YR6/8 reddish yellow hematite inclusions; moderate hardness; porous.

Body sherd thickness: medium (4.0 mm to 5.5 mm)

Glaze/surface treatment: The vessels are glazed inside and out with a clear glaze through which the paste appears light yellow (2.4Y8/4 pale yellow) as in YG2. Under the clear glazed base, the exterior is crudely painted with large, bands of manganese brown, copper green and cobalt blue. Color combinations anticipate the 18th-century English Whieldon "clouded ware," but are not marbled.

Forms: bulbous mugs or small pots.

Function: Food serving and consumption.

Pentagoet chronology: Pentagoet I (1635-1654) and Pentagoet III (1670-1674).

Comments: This ware is a relatively well known product of the Saintonge region of France, and was exported throughout north-west Europe in the 16th and early 17th centuries. The style of painting in these colors, however, can be traced to 10th-century North Africa (Jean Chapelot, et al., *Potiers de Saintonge*, p. 37).

PC2, Saintonge relief molded

Fabric color: buff (10YR7/2 light gray) to pink (5YR8/3 pink).

Paste inclusions/properties: fine grit temper with frequent 5YR6/8 reddish yellow hematite inclusions and many flecks of dark minerals; moderate hardness; porous.

Body sherd thickness: widely variable, from thin to thick in the same vessel (4.0 mm to 10.0 mm).

Glaze/surface treatment: These vessels are decorated with applied relief molding. After a biscuit firing, the key features of the molded forms are crudely painted with large, separate, painted splotches of iron oxide or manganese brown, cobalt blue, and copper green, in any combination. The entire vessel is then dipped in a clear glaze through which the paste appears light yellow (2.4Y8/4 pale yellow) as in YG2. Alternatively, the interior may be glazed with a plain, speckled copper green as in GG3a. As in PC1, these color combinations anticipate the 18th-century English Whieldon "clouded ware," although they are not marbled.

Forms: hollow, including chafing dishes, a costrel, and a possible sauce or incense boat.

Function: Food serving and consumption as decorative tableware.

Pentagoet chronology: Pentagoet I (1635-1654).

Comments: This ware mimics the finer works of such artisans as Bernard Palissy. It is a relatively well known product of the Saintonge region of France, and was exported throughout northwest Europe in the 16th and early 17th centuries.

Redwares

Plain

RW1

Fabric color: pale red (5YR6/6 light red) to red (2.5YR5/6 red).

Paste inclusions/properties: much fine mica and a few quartz inclusions; few small voids; fired in oxidizing atmosphere; moderate hardness; porous.

Body sherd thickness: medium (4.5 mm to 6.0 mm).

Glaze/surface treatment: plain, unglazed.

Forms: unidentified large hollow forms, with possible spout.

Function: storage?

Pentagoet chronology: Pentagoet I (1635-1654) or possibly Pentagoet III (1670-1674).

Comments: This redware may be made from mica bearing clays located on the southwestern peninsula of England. A French or Spanish Mediterranean origin has also been suggested. Unfortunately the forms are too fragmentary and the sample is to small to permit further identification.

RW2

Fabric color: marbled paste, bright red (2.5YR5/6 red) and white (5YR 8/1white).

Paste inclusions/properties: a few mica flecks with a few coarse quartz inclusions; moderate hardness; porous.

Body sherd thickness: thick (7.5 mm to 10.0 mm).

Glaze/surface treatment: plain, unglazed. In spite of the marbled paste, the surface is fairly uniformly red, unlike English Agate ware. The interior is sometimes reduced to a dusky red (2.5Y5/2 weak red).

Forms: unidentified hollow forms.

Function: storage?

Pentagoet chronology: unclear, but either Pentagoet I (1635-1654) or Pentagoet III (1670-1674).

Comments: This is a rare, but fairly distinctive redware type at Pentagoet.

Lead Glazed

RW3, North Devon gravel tempered

Fabric color: red (5YR6/3 light reddish brown) highly oxidized fabric often with a core of reduced colors varying from buff (10YR7/3 very pale brown) to gray (2.5Y 6/2 (light brownish gray).

Paste inclusions/properties: Coarse sand temper throughout, evident even on the plain exterior surfaces; low to moderate hardness; porous.

Body sherd thickness: variable, but generally very thick (6.0 mm to 15.0 mm)

Glaze/surface treatment: Except for the rim, all of the interior is lead glazed a mottled, dull green (5Y3/2 dark olive gray) effectively sealing the fabric..

Forms: hollow, consisting of a single, very large, globose, loop-handled vessel, with distinctive thumb impressed buttressing under the rim. The grooved rim was evidently designed to receive a tight fitting interior seal.

Function: storage of liquids.

Pentagoet chronology: Pentagoet III (1670-1674).

Comments: This is a product of North Devon, England, a somewhat unusual example of North Devon Gravel Tempered ware. A near match was found in the collections of The Exeter Museum, excavated from Barnstaple pottery wasters in use during 16th and 17th centuries.

RW4, North Devon gravel free

Fabric color: red (5YR7/3pink to 2.5YR6/6 light red) to gray (5YR6/1 light gray to gray), the gray always occurring on the vessel interior, and the red on the exterior. The openings of these hollow forms were apparently kept partially closed in firing, resulting in a reducing atmosphere, while the exterior was exposed to an oxidizing fire.

Paste inclusions/properties: fine grit with frequent large grains of quartz and feldspar; moderate hardness; a few small voids; porous.

Body sherd thickness: thick (5.0 mm to 8.0 mm), showing turning marks on the interior, made by the fingertips of the potter.

Glaze/surface treatment: The smooth lead glaze occurs on the interior of the vessel only. It varies considerably in color from yellowish brown (10YR 5/6 yellowish brown) to greenish brown (2.5Y5/6 light olive brown) and often shows some mottling. The glaze seals the interior, rendering it impervious to liquids.

Forms: hollow, principally baluster or "pilchard" jars and related tall forms. All specimens are rilled on the interior , these turning marks having been formed by the potter's fingertips. This is probably a technological characteristic of tall vessels which must be formed tightly around the potter's arm.

Function: Transportation and storage of preserved foods.

Pentagoet chronology: Penobscot (1629-1635).

Comments: Matches for these pottery fragments have been found in the wasters of North Devon potteries at Barnstaple, now in collections of the Exeter Museum. Several complete specimens have been recovered in 16th and early 17th-century contexts in excavated materials from Plymouth, England. and now housed in the Plymouth Museum. Surely this is a product of North Devon, and probably was not commonly exported to American sites after c. 1645. This distinctive ware occurs on many English colonial sites in Maine and Virginia occupied before this date.

RW5

Fabric color: red (2.5YR6/6 light red).

Paste inclusions/properties: occasional fine calcareous grains, few small voids moderate hardness; porous.

Body sherd thickness: medium (6.0 mm to 7.0 mm).

Glaze/surface treatment: The interior is sealed with a brown (5YR3/4 dark reddish brown) slightly mottled lead glazed with flecks of yellow (10YR 7/6 yellow), apparently calcareous flecks showing through the glaze.

Forms: unidentified globose vessel.

Function: dairy?

Pentagoet chronology: ambiguous, possibly 18th century.

Comments: Sherds of this ware have been found only in the loose stone rubble of Pentagoet's destruction, and are therefore difficult to date.

RW6

Fabric color: red (5YR 5/4 reddish brown to 5YR 6/6 reddish yellow).

Paste inclusions/properties: dense matrix, but with several small voids and a few fine grit inclusions; moderate hardness; porous.

Body sherd thickness: thick (5.0 mm to 11.0 mm).

Glaze/surface treatment: The vessels are sealed on the interior only with a smooth, dark chocolate brown (5YR3/3 dark reddish brown) iron-lead glaze. Drips of glaze also occur down the exterior.

Forms: hollow forms, principally large storage jars.

Function: storage.

Pentagoet chronology: Pentagoet I (1635-1654) and possibly Pentagoet III (1670-1674).

Comments: Steven R. Pendery has tentatively identified this ware as a product of Charlestown, Massachusetts, perhaps made by Philip and Edward Drinker, at work between 1635 and 1700.

RW7

Fabric color: red (5YR6/4 light reddish brown to 5YR6/6 reddish yellow).

Paste inclusions/properties: dense fabric with a few fine grit inclusions; many small voids; moderate hardness; porous.

Body sherd thickness: thick 7.0 mm to 8.0 mm

Glaze/surface treatment: A splotchy iron-lead glaze occurs on the interior only, varying from brown (7.5YR5/4 brown) to dark brown (7.5YR3/2 dark brown).

Forms: hollow forms, including a straight sided cream pot, and globose jars.

Function: storage (dairy?)

Pentagoet chronology: Post Pentagoet (c. 1758-c. 1765).

Comments: The origin of this ware is unknown.

RW8

Fabric color: red (2.5YR5/4 reddish brown).

Paste inclusions/properties: dense fabric with a few fine quartz inclusions; many small voids; moderate hardness.

Body sherd thickness: thick (7.0 mm to 7.5 mm)

Glaze/surface treatment: The interior is covered with a thick, pitted, dark brown (5YR2.5/2 dark reddish brown) iron and lead glaze. On the exterior it is covered with a white (10YR8/3 very pale brown) slip.

Forms: hollow, consisting of a single shallow bowl.

Function: food preparation or serving.

Pentagoet chronology: Post Pentagoet (c. 1758-c. 1765).

Comments: The origin of this ware is unknown. It has been dubbed in the field "Gaffey slipped."

Tin Glazed Earthenwares

Buff Bodied

TG1, plain delft

Fabric color: buff (10YR 8/3 very pale brown).

Paste inclusions/properties: fine grit, with frequent small mica, hematite, and quartz inclusions; soft; porous.

Body sherd thickness: medium (3.0 mm-7.0 mm).

Glaze/surface treatment: Vessels are glazed inside and out with a smooth white (10YR8/1 white) tin enamel. Pits appear only on the exterior of one albarello form drug pot.

Forms: apothecary jar of albarello shape, a small jars, a small cup or porringer, and bowl.

Function: apothecary use and food consumption.

Pentagoet chronology: Pentagoet I (1635-1654) and perhaps Pentagoet III (1670-1674).

Comments: These are probably of mid-17th-century English manufacture, although a Dutch origin should be considered as well. Small fragments of this ware are scattered over a wide area of the site, and there are few cross mends.

TG2, 17th-century blue-on-white delft

Fabric color: buff (10YR 8/3 very pale brown).

Paste inclusions/properties: fine grit, with frequent mica, hematite, and some large quartz inclusions; soft; porous.

Body sherd thickness: thin (3.5 mm to 4.0 mm).

Glaze/surface treatment: This is a common blue-on-white painted delft. The ware is glazed inside and out with an off-white (10YR7/1 light gray) tin enamel. This base is a hand painted on the interior with cobalt blue on white using broad brush strokes. Designs on plates here are stylized tulips, serpentine lines, cross hatching and related geometric motifs.

Forms: Both hollow and flat including an apothecary jar, four plates, and two gaming pieces.

Function: drug, or ointment container, food consumption or household decoration, gambling.

Pentagoet chronology: Pentagoet I (1635-1654) and possibly Pentagoet II (1654-1670).

Comments: These are probably of mid to late 17th-century English manufacture although a Dutch origin should be considered as well. Note that this is the only significant representation of flatware at Pentagoet from 17th-century contexts.

TG2a, 18th-century blue-on-white delft

Fabric color: buff (10YR 8/3 very pale brown).

Paste inclusions/properties: fine grit, with medium mica,hematite, and quartz inclusions; soft; porous.

Body sherd thickness: thin (3.5 mm to 4.0 mm).

Glaze/surface treatment: The ware is glazed inside and out with a bluish white (N8/0 white) tin enamel, often pitted. This background is a hand painted on the interior with cobalt blue on white using medium to fine brush strokes. Designs are unidentified scenes.

Forms: hollow ware represented by one small bowl.

Function: food serving.

Pentagoet chronology: Post Pentagoet (c. 1758-c. 1765).

Comments: This specimen is probably of mid-18th-century English manufacture, and may be a tea bowl.

Pink Bodied

TG3, plain faience

Fabric color: pink (5YR7/6 reddish yellow).

Paste inclusions/properties: fine paste with a few hematite and quartz inclusions; soft; porous.

Body sherd thickness: thin (3.5 mm to 4.0 mm) except for basin which is slightly thicker (5.5 mm).

Glaze/surface treatment: Specimens are glazed inside and out with a thick, pure white (10YR8/1 white) tin enamel which is smooth, having no pits. The glaze on one plate rim is tan colored (5y7/2 light gray) and may represent another ware.

Forms: hollow and flat, including a small bowl, an ornate zoomorphic handle (sauce boat?), a cup handle a lid handle, and a plate.

Function: food serving; tableware.

Pentagoet chronology: Pentagoet I (1635-1654)

Comments: This type is characterized by its pink paste and smooth, pure white glaze. It is presumed to come from an as yet unidentified source in France.

TG3a, plain green faience

Comments: A single, small sherd found in Pentagoet I deposits is noteworthy for its distinctive bright green tin glaze which covers both the interior and exterior. Otherwise the paste and surface resembles TG3, plain white faience. Although it is probably safe to include this type with the decorative tableware which characterizes Pentagoet I, no parallel for this type has been found elsewhere. However, faience bowls with blue or violet tinted background glazes have been found at La Place Royale in 18th-century contexts (see Nicole Genêt, "Les Collections Archéologiques de la Place Royal: La Faience" *Dossier 45*, Ministère des Affaires Culturelles, Québec, 1980, p. 19 and Figure 6).

TG4, polychrome faience

Fabric color: pink (5YR7/6 reddish yellow).

Paste inclusions/properties: fine paste with a few hematite and quartz inclusions; soft; porous.

Body sherd thickness: thin (2.5 mm to 3.5 mm).

Glaze/surface treatment: Vessels are glazed inside and out with a thick, pure white (10YR8/1 white) tin enamel. The glaze is smooth, having no pits, and is crudely painted with broad strokes in blue (cobalt?) and yellow, and is accented with fine lines in brown, apparently a very simple floral design applied before the final firing. Decoration can occur on the interior or exterior of bowls.

Forms: hollow, including two small shallow bowls, cups, or porringers, one painted on the exterior, the other on the interior.

Function: food serving; tableware.

Pentagoet chronology: Pentagoet III (1670-1674).

Comments: Though presumed to be French, the origin of this ware is unknown. similar decoration, however has been illustrated for an 18th-century specimen at Louisbourg, tentatively identified as a product of Sceaux, near Paris (see Palardy, Jean, "Eighteenth Century French Faïence in Canada," *Cahiers de la Céramique du Verre et des Arts du Feu*, Nos. 48-49, pp. 12-25, 1971, Figure. 1).

Stonewares

Plain Gray Bodied

SW1

Fabric color: light gray (10YR7/1 light gray).

Paste inclusions/properties: dense with rare dark mineral flecks; hard; non-porous.

Body sherd thickness: thin (2.0 mm to 3.5 mm).

Glaze/surface treatment: This ware is typically unglazed, although one basal fragment shows a thin saltglaze.

Forms: hollow, including rims to two small pots perhaps for preserves or ointment, and a base to another unidentified vessel.

Function: food serving?

Pentagoet chronology: Pentagoet I (1635-1654) and Pentagoet III (1670-1674). Pieces in the latter period have probably been re-deposited.

Comments: This a rare ceramic type at Pentagoet, with no mends or cross mends. Similar rim forms have been identified in 18th-century contexts at La Place Royale as belonging to "pots à consèrves" and are attributed to potteries in the Loire Valley and in Beauvais (see Louise Decarie-Audet, *La Place Royale--Collections Archéologiques: Le Grès Français*, Figures 18a and 26). However, since the Pentagoet rims are much larger and are everted they may well belong to some other vessel form. Similarly, the origin of this ware remains undetermined.

Saltglazed, Buff Bodied

SW2

Fabric color: buff (10/YR7/3 very pale brown).

Paste inclusions/properties: dense fabric with occasional quartz grains; hard; non-porous.

Body sherd thickness: medium (2.5 mm to 6.0 mm).

Glaze/surface treatment: The ware is covered with a very clear salt glaze and ornamented with small, detailed, sprig molded rosettes accented in cobalt blue.

Forms: hollow, a single, large, globose mug or tankard with sprig molded rosettes.

Function: drinking vessel.

Pentagoet chronology: probably Pentagoet I (1635-1654) refuse redeposited in Pentagoet III (1670-1674) contexts.

Comments: Except for the body color and amount of cobalt blue, this type looks like many early Westerwald jugs, like one shown in the well known painting *The Millkmaid*, by the Dutch artist Jan Vermeer, dating c. 1660. In this case, however, this distinctive buff bodied stoneware is probably a lesser known French or Walloon product. The sole specimen at Pentagoet is badly fragmented and scattered over the site, and therefore probably pre-dates the final garrison of the fort.

Saltglazed, Gray Bodied

SW3, Bartmanns, bellarmines or graybeards

Fabric color: gray (10YR6/1 light gray to gray) to brownish gray (2.5YR6/2 light brownish gray).

Paste inclusions/properties: dense with a few small voids; hard; non-porous.

Body sherd thickness: thick (5.0 mm to 8.0 mm).

Glaze/surface treatment: The exterior of the ware is salt glazed over a mottled dark brown (7.5YR3/4 dark brown) wash. Interiors are thinly salt glazed, and are tinged various colors, from light gray (2.5Y7/2 light gray) to pink (7.5YR7/4 pink to 5YR6/3 light reddish brown). No bearded faces have been found, but the medallions represented are molded in fine detail and applied to the globose body of these jugs. One medallion shows a splotch of cobalt blue.

Forms: hollow, closed forms consisting of six bartmanns jugs. Each has a medallion in intricate detail, bearing the armorial crest of a major city or principality including Cologne, Amsterdam, and the House of Nassau.

Function: Serving alcoholic beverages.

Pentagoet chronology: Pentagoet I (1635-1654) exclusively.

Comments: These appear to be common Frechen bartmanns of the early decades of the 17th century—gourd or pear shaped bottles with a sprig molded bearded face on the neck and a medallion bearing an armorial crest at the midsection. Ivor Noel Hume of Colonial Williamsburg has tentatively placed their manufacture in the period 1620-1635 based on comparable material from Martin's Hundred, near Jamestown, Virginia and elsewhere.

SW4, Westerwald

Fabric color: gray (!0YR6/2 light brownish gray).

Paste inclusions/properties: dense fabric; hard; non porous.

Body sherd thickness: Medium (3.5 mm to 5.0 mm).

Glaze/surface treatment: The ware is covered with a very clear salt glaze and ornamented with fine, detailed sprig-molded leaf and fruit design and incised curvilinear patterns accented in cobalt blue. A blue band surrounds the cordoned base.

Forms: hollow, comprising one globose jug.

Function: serving beverages.

Pentagoet chronology: Post Pentagoet (c. 1758-c. 1765). All the pieces of this ware have been found in fill and on the paving near the well (Structure 6) in association with other 18th-century ceramics and tobacco pipes.

Comments: This specimen probably representative of the well known products of the Westerwald region of the Rhineland, and dating, perhaps, to the first quarter of the 18th century. The form and motif closely resembles a Grenzhauzen type pewter mounted jug illustrated in Ivor Noel Hume's *A Guide to Artifacts of Colonial America*, Figure 91. Noel Hume's specimen bears the monogram of Queen Anne, and on that basis has been dated between 1702 and 1714.

TABLE F.1
Ceramic Types at Pentagoet and Fort La Tour (Saint John, New Brunswick)

Class/Type	Form	Description and basis for count	Fort Pentagoet Count*	Fort Pentagoet Sum	Fort La Tour Count*	Fort La Tour Sum
Common earthenwares						
Buff bodied green glazed						
Plain, interior glazed						
GG2	hollow	Strap handled pots/storage vessels	14		7	
		Pots with incised or rouletted banding	(4)		4	
		Pots (base forms)	(7)			
		Pipkin/skillet			1	
		Cups/small straight sided jars			1	
		Pots with thumb impressed rim	(2)			
GG2a	hollow	Small Pitchers/Jugs with pinched lip	2			
		Jug (spout)	1			
		Flat based jars or pots	3			
				20		13
Plain, glazed inside and out						
GG3 plain, fine	hollow	Small apothecary or preserve jars	7		1	
		Shallow bowl, thumbed cordon below rim	1			
		Unidentified form (basal fragment)	(1)			
		Unidentified form (strap handle)			1	
		Fine pitcher (3-ply twisted handle)	1			
		Bowl with decorative strap loops on rim			1	
GG3a plain, pitted		Chafing dish (rim loop)	1			
GG3b yellow interior	hollow	Globose pot	1			
Buff bodied orange glazed						
OG1	hollow	Globose pot	1	1		0
Buff bodied yellow glazed						
YG1	hollow	Round double-handled cooking pots	14			
		Jars	3			
		Large pitcher/jug	1			
	flat	Plate rim	1			
				19		0
Polychrome						
PC1 brown, green & blue painted	hollow	Globose mugs or single-handled pots	2		2	
PC2 polychrome relief molded	hollow	Chafing dish	2		1	
		Unidentified (handles, spoits)			5	
		Oval sauce boat	1		1	
		Costrel	1		1	
	flat	Unidentified chevron embossed rim (font?)			1	
		Tureen or porringer			1	
				6		12
Plain redwares	hollow	RW1 micaceous, storage forms	3			
		RW2 storage forms	4			
				7		0
Lead glazed redwares						
North Devon storage vessels	hollow	RW3 large storage jar	1			
		RW4 baluster jars and related forms	15			
				16		0
North Devon tableware	flat	Sgraffito plate or shallow bowl			1	
				0		1
Other lead glazed redwares	hollow	RW5, & RW6 storage forms	3			
				3		0

(*continued*)

TABLE F.1 (*Continued*)

Class/Type	Form	Description and basis for count	Fort Pentagoet Count*	Fort Pentagoet Sum	Fort La Tour Count*	Fort La Tour Sum
Tin glazed						
Delft						
TG1 plain white	hollow	Drug or ointment pot	2			
		Small jar (base)	1			
		Small cup or porringer (rim)	1			
TG2 blue-on-white	hollow	Drug pot, albarello form	1		1	
	flat	Plates	3		2	
				8		3
Faience						
TG3 plain white	hollow	Small bowl or serving vessel	1			
		Sauce boat or porringer (handle)			1	
		Sauce bowl (zöomorphic handle)	1		1	
		Cup (handle)	1			
		Tureen lid (handle)	1			
(brownish glaze)	flat	Soup plate (rim)	1			
TG3a plain green	?	Unidentified	1			
TG4 polychrome	hollow	Saucers or porringers	2			
				8		2
Stonewares						
Unglazed						
Gray bodied						
SW1 gray	hollow	Unidentified (rims)	2	2		0
Brown bodied						
Norman, Ger-Like	hollow	Strap-handled storage jugs		0	2	2
Saltglazed						
Buff bodied						
SW2 buff bodied	hollow	Globose tankard with sprig molded rosettes	1			
Gray bodied Rhenish-like						
SW3 Frechen gray	hollow	Bartmann jugs (medallions, paste, etc.)	6		1	
SW4 Westerwald		Jug with sprig molded rosettes, cobalt dec.			1	
Walloon	hollow	Travelling bottle, strap handles, cobalt dec.			1	
				7		3
Unid "lead glazed"		Tall jar		0	1	1
		Total		108		40

* Identifications not adding to the minimum number of vessels are shown in parentheses.

TABLE F.2
Pentagoet Ceramics: Minimum Counts of 18th Century Vessels

Ware	Class/Type	Form	Description and basis for count	Count	Sum
Coarse earthenwares					
Buff bodied	Slipware				
	Staffordshire-like	hollow	dotware double-handled posset pots	2	
			other cups/pots (bases)	2	
			combed small bowl	1	
		flat	combed platter	1	6
Redware	Lead glazed				
	RW7	hollow	small crock or "cream pot"	1	
			pots/jars	2	
			pot (unique rim)	1	4
	Slipware				
	RW8	hollow	basin or shallow bowl	1	1
	New Eng. trailed	hollow	milkpan	1	1
	New Eng. brushed	hollow	chamber pot?	1	1
Fine earthenwares					
	Creamware				
	plain	hollow	cup	1	1
Tin glazed	Delftware (English)				
	blue-on-white	hollow	tea bowl?	1	
		flat	plate	1	2
Stonewares					
Unglazed					
	Red bodied				
	dry bodied redware	hollow	teapot	1	1
Saltglazed					
	White saltglazed				
	plain	hollow	tea bowls	5	
			charger	1	
			bowl (incised rim)	1	
		flat	plate	1	8
	Scratch blue	hollow	small bowl	1	1
	Gray bodied Rhenish				
	Westerwald	hollow	globose mug, sprigged, w/ cobalt bl.	1	1
			total		27

APPENDIX G

Faunal Analysis

Mammal and bird identifications were made by Dr. Arthur Spiess of the Maine Historic Preservation Commission, while Catherine Carlson, former graduate student in Quaternary Studies at the University of Maine, analysed the fish remains. The data below have been compiled from their reports.

Tables G.1 and G.2 below present element counts of faunal remains from the Dwelling, most of which is presumed to have accumulated during Pentagoet III. Table G.3 represents a preliminary inspection of samples from a Pentagoet I midden located behind d'Aulnay's House, Structure 7. In this case, a thorough analysis of this midden proved to be beyond the practical limits of the current project. Instead, a preliminary assessment was made by examining 15 sample bags, and ranking in order their principal identifiable components. Consequently, these data are presented only for gross comparison of the major genera represented and their relative frequency.

TABLE G.1
Mammal & Bird Fauna from the Dwelling, Str. 1

Identification	1.1	1.2	Both	MNI*
Mammal				
Unidentified mammal				
medium (sheep, goat, dog size)	24	1	25	
large (pig, seal, deer size)				
longbone fragments	154	128	282	
other	94	179	273	
	248	307	555	
very large (cattle, moose size)				
rib	52	29	81	
other	44	35	79	
	96	64	160	
misc. unidentified	783	543	1326	
Total unidentified mammal	1151	915	2066	
Domesticates				
Bos taurus (cow)				
teeth/skull	12	1	14	
vertebra/ribs	15	3	18	
scapula/pelvis	1		1	
longbones	11	4	15	
phalanges/tarsals/carpals	27	8	35	
	66	16	82	5
Sus scrofa (pig)				
teeth/skull	16	24	40	
vertebra/ribs	5	8	13	
scapula/pelvis	1	2	3	
longbones	12	6	18	
phalanges/tarsals/carpals	6	2	8	
	40	42	82	10
Ovicaprid (sheep/goat)				
teeth/skull	5	1	6	
vertebra/ribs	2	1	3	
scapula/pelvis	2		2	
longbones	5	6	11	
phalanges/tarsals/carpals	5	4	9	
	19	12	31	2
Felis domestica (domestic cat)	29		29	2
Wild				
Alces (moose)		3	3	1
Ursus americanus (black bear)		1	1	1
Odocoileus (deer)		4	4	1
Phoca (seal)	2	1	3	1
Castor canadensis (beaver)				
teeth/skull	2	3	5	
post cranial	1	2	3	
	3	5	8	2
Mustela (weasel)		4	4	1
Lepus (hare)	3		3	1
Total mammal bones	1313	1003	2316	23

(continued)

TABLE G.1 (*Continued*)
Mammal & Bird Fauna from the Dwelling, Str. 1

Identification	1.1	1.2	Both	MNI*
Bird				
Unidentified Aves (bird)				
medium (duck size)	275	39	314	
large (goose size)	10		10	
misc. unidentified	473	50	523	
Total unidentified bird	758	89	847	
Cygnus (Swan)	4		4	1
Branta canadensis (Can. brant)	21	9	30	7
Goose	3		3	1
Loon	1		1	1
Duck, small	100	2	102	23
medium	21	7	28	3
large	29	2	31	4
	150	11	161	30
Larus (gull)	3		3	1
Ardeid				
small (bittern)	1		1	1
large (heron)	3		3	1
	4	0	4	2
Scolopacid				
small (sandpiper)	26	1	27	3
large (curlew)	24		24	8
	50	1	51	11
Buteo (hawk)	3		3	1
Grouse?	10		10	2
Total bird bones	1007	110	1117	57
Total mammals and birds	2320	1113	3433	80

After Arthur Spiess, "Draft Report on the Mammal and Bird Fauna from Str. 1.1 (Officers' Quarters Cellar) and Str. 1.2 (Officers' Quarters Living Area), Pentagoet 1982 Excavations," ms. on file, Historic Archaeology Lab, University of Maine.

*minimum number of individuals

TABLE G.2
Fish Remains from the Dwelling, Str. 1

Identification	1.1	1.2	Both
Fish			
Gadus morhua (Atlantic cod)	50	1	51
Morone saxatilis (striped bass)	20		20
Alcipenser sp. (sturgeon)	14		14
Malanogrammus aeglefimis (haddock)	4		4
Pomatomus saltrix (bluefish)	3		3
Pseudopleuronectes americanus (winter flounder)	1		1
Myoxoeephalus octodecemspinosus (longhorn sculpin)	1		1
Unknown sp. (large)	2		2
Unidentifiable	423	16	439
Total fish	518	17	535

After Catherine Carlson, "Summary Report on the Analysis of the Fish Bone from Fort Pentagoet (ME084-3)," February, 1983, ms. on file, Historic Archaeology Lab, University of Maine.

TABLE G.3
Fauna from the d'Aulnay House Midden

Identification	Relative frequency*
Mammal	
Domesticates	
Sus scrofa (pig)	• • • • •
Ovicaprid (sheep/goat)	• • •
Bos taurus (cow)?	•
Canis familiaris (dog)	•
Wild	
Phoca (seal)	• • •
Ursus Americanus (black bear)	• • •
Alces (moose)	•
Castor canadensis (beaver)	• •
Odocoileus (deer)	•
Bird	
large (goose, etc.)	• • • •
medium (duck and shore bird)	• • •
Fish	
Gadus morhua (Atlantic cod)	• • •
Morone saxatilis (striped bass)	• •

After Arthur Spiess, February, 1985, preliminary notes on file, Historic Archaeology Lab, University of Maine.

*Estimates of relative frequency indicated by 1 to 5 bullets

APPENDIX H

Account of Henri Brunet

Report of that which must be loaded in a vessel [bound] for the coast of Acadia and then for the American Isles [Newfoundland] rated at 200 tons burden

Firstly

60: [tuns] of salt, or thereabouts	1500#
20 quartauts of *aqua vitae* [1 quartaut ≈ 67 liters] divided into small barrels of from 20 to 30 pots [1 pot ≈ 1 liter]	550#
300: Linen shirts of Morlaix [Brittany] from 12 to 15^s each [20 sou = 1 livre] full cut and well sewn	220#
Five dozen town style caps	70#
In black taffeta cravat with a bit of tape below for sailors	60-
50 also of taffeta from 40 to 45^s each	125-
2: large size hats from Caudebec at 24# the dozen:	48-
In ~~silk~~ buttons, that is 1/3 silk and 2/3 thread ~~1/3 third for doublets and 2/3 for~~ all fitted for jerkins, which must be bought firsthand [new], gray, brown, and white and a gross or so of red for camisoles	60-
In thread laces bought firsthand	12-
6: guns from Fouras carefully selected	60-
24: gunlocks from Fouras	72-
200: also some Morlaix linen, from 12 to 15^s each, firsthand	150-
In St Estienne ribbon of assorted colors besides yellow, of various lengths in half pieces	250-
three tuns [1 tonneau ≈ 905 liters] of wine well aged, that is 2/3 claret and 1/3 white	200-
	3377#
Continued from the other part	3377#
20# [1 livre ≈ 490g] of thread from Rennes [Brittany]	22#
30: pairs of shoes from Poitou [W. France] at 45^s	67–10–
one livre of silk	14–
6 pieces of drugget [artificial silk] a 12# piesse	72– –
for 12# of galloons [braid] of white thread	12–
for as much galloons of silk, black, white and red	12–
10: dozen pins	40
for 10# of needles	10–
60: also of white linen from Lyons at 12^s	36 –
200 quartauts for putting up beef where profitable, if one wants it in them They must be filled with salt	400 –
2 dozen razors from Fouras [near La Rochelle]	12 –
2 dozen large shears from Fouras	6 –
a gross of [playing] cards	15
a dress for a girl, according to my written instructions, as a present to M^r Papin	60
for 30# of horn and wood combs, firsthand	30
Three hundred livres of [fishing] line from Cherves [near Cognac] neatly coiled in a hogshead	130
For freight to put the whole on board	250
Amounts in all	4565#10^s

Copy

Account for the same, men's provisions for eight months

Firstly

60: quintals of bread
4: tuns of fully aged wine amongst which five or six good hogsheads [barriq^{e}]
are to be selected to be drunk at the unlading [of the cargo] and perhaps for sale
a tun of vinegar
100# of oil in crocks
a barrel of lard; I will get more here to supplement [this supply]
a hogshead of beans only, peas being cheap here [Boston]
a 25 to 20# potful of butter for the crossing; some dry fish for the crossing
eight thousand nails or so, half for the deck and [half for] stowage
100# of candles
plus all the little utensils of which it is not necessary to note

copy

English translation by Alaric Faulkner.

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MeHS Collections and Proceedings of the Maine Historical Society, Portland.

MassHS Collections of the Massachusetts Historical Society, Boston.

NEQ New England Quarterly

PAC Public Archives of Canada

RAPQ Rapport de l'Archiviste de Québec, Québec, 1926–1931.

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